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ORIGINAL ARTICLES.

ETIOLOGY OF THE IRREGULARITIES OF THE TEETH AND JAWS.

ARREST OF DEVELOPMENT OF THE SUPERIOR MAXILLA.

Read in the Section on Dental and Oral Surgery, at the Thirty-ninth Annual Meeting of the American Medical Association, May, 1888.

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The subject of the etiology of irregularities of the teeth is so comprehensive and so replete with points of interest, that it is obviously impossible for one to enter into minutiæ within the limits of a single paper. I have therefore deemed it best to prepare a series of papers, in which an attempt will be made to present in an intelligible manner the conclusions formed during an extensive experience in the examination and study of the mouths of strong and well constituted persons, of the mouths of the insane, idiotic, deaf and dumb, and blind, and of models of various deformities of the jaws and teeth. In the present paper—the first of the series—attention will be given to such irregularities as are developed coincidently with the growth of the skeleton; these being, as is well known, chiefly connected with the superior maxilla.

Irregularities of the teeth may be classed as, first: those developed with the formation of the osseous system, and due to constitutional causes; second: those produced by local causes. Irregularities which are inherited, or appear *pari passu* with the development of the osseous system, always take definite shapes and are either the result of arrested development or of inharmonious growth of the maxillary bones. Where arrested development causes deformities they assume the forms known as the saddle- and V-shaped arches, or deformities of a similar character. Where the deformities are due to local influences they may assume any shape or position, the irregularities appearing at or soon after the development of the permanent teeth. English and American authors have spoken of irregularities as congenital, or being of a congenital origin. We can readily understand that the deformity of a single tooth may be congenital, but cannot agree in the classification of an irregularity of several teeth upon either or both jaws among congenital deformities. Congenital, according to Webster and Quain (whose definitions are generally accepted by medical men), signifies "pertaining to or existing at birth." For instance, cleft palate, hare-lip and spina bifida are congenital deformities, because they exist as entities at birth. The first teeth have not taken positions at birth, and as the permanent teeth do not appear for six years, nor assume any degree of deformity for some years after eruption, general irregularities of the permanent teeth could hardly come under Quain's definition of congenital.

In discussing the subject of irregularities of the teeth it is necessary to commence at the formation of the bones of the skeleton, taking up the different deformities in their natural order, and finishing with the simple irregularities caused by local disturbances. As already indicated, attention will be directed in the present paper chiefly to the subject of those constitutional and hereditary conditions which affect the form of the maxillary bones. The maxillary bones include that part of the upper and lower jaw to which are attached the muscles, and not the alveolar processes, which are for the purpose of retaining the crowns of the teeth while they are forming, and for the retention and support of the teeth after eruption. Anatomists speak of the two portions as one bone, but the growth and functions of the two parts differ so widely that it seems necessary to the orthodontologist to consider them as separate and distinct structures. The lateral halves of the human frame do not always correspond in weight and size. This is true of both external and internal organs. This difference in the contour of both sides of the cranium may be seen in almost every head measure taken by the hatter. The feet, hands and limbs will show the same variation in the lateral halves. We should, therefore, be prepared to find not only differences in the upper and lower jaws, but changes in the lateral halves of each bone. This can be shown by taking full and accurate impressions of both jaws and mounting them upon wire articulators. By comparing first the jaws and then the lateral halves we may readily see how much variation exists in the jaw and teeth. These deformities are often so prominent that mechanical interference is necessary to

improve the appearance and the use of the teeth.

We are indebted to Mr. Langdon Down for first calling the attention of the profession to the V-shaped, saddle-shaped, and high arches in connection with the condition of idiocy. Later on, Dr. W. W. Ireland contributed largely towards our knowledge of and interest in these deformities. Both of the gentlemen named are at the head of large English institutions for the feeble-minded, and are devoting their lives to the care and training of these unfortunates. The numerous able papers pertaining to this subject which they have published, bear testimony to their experience and ability in all phases of idiocy. The most remarkable feature of their conclusions, as far as I am able to comprehend them, is their apparent recognition of the frequent existence of the three principal forms of maxillary deformity, and their failure to recognize any other forms of osseous asymmetry and irregularity in the skeletons of idiots. Such a preponderance of maxillary deformities as compared with other osseous tissues in the same class of subjects, is incomprehensible to me, and I find upon investigation that several prominent writers entertain quite different views. Drs. Kingsley, Stelwagen and White claim that the saddle- and V-shaped jaws and high arches are by no means characteristic deformities of idiots, and that they occur with no greater frequency than in other classes of patients. These authors also fail to note any especial tendency to irregularity and asymmetry of development on the part of the general osseous tissues of idiots.

In extensive personal examinations through various institutions for idiots, deaf and dumb, and blind, the conditions which have been observed may be classified as, first: those which are developed with the growth of the individual and may be properly called constitutional; and second: those produced by local influences. I found not only the three principal deformities of the jaws, but other irregularities, to be quite common. Among them were cases of large jaws, protrusion of the upper and lower jaws, high arch, V- and partially V-shaped arches, saddle-shaped arches, small teeth, and arrested development of the jaw bones, especially the superior maxilla. While making these examinations I observed in many of the individuals examined deformities and arrest of development with asymmetry of different members of the body. From these examinations I believe myself warranted in the assertion, that a much larger percentage of deformities of the teeth and jaws exists among a given number of imbeciles, deaf and dumb, and blind, than in the same number of normal individuals; the various conditions being the result either of arrested development, inharmonious development, or excessive growth. When we consider what special conditions constitute the entity termed idiocy, such occurrences are not at all surprising, idiocy being a general condition. Dr. Shuttleworth has aptly described "idiocy as a vice of the entire organism, an affection not only of the nervous system, but of the functions generally of organic life. Oftentimes the whole bodily conformation bears the impress of idiocy, and not only the lineaments of the face, which by its intelligence should reflect the Divine image, but also the form of the limbs, and especially of that masterpiece of mechanism, the human hand, are sadly marred." By studying the causes and effects of idiocy we may be able to find the relations between it and abnormalities of the maxillary bone. According to one of the best authorities (Dr. W. W. Ireland) "idiocy is mental deficiency or extreme stupidity, depending upon malnutrition or disease of the nerve centres, occurring either before birth, or before the evolution of the mental faculties in childhood." From this definition we see that arrested or imperfect development of nervous tissue may take place either *in utero* or soon after birth, before the organs and tissues are developed perfectly. Such perversions of development do not confine themselves to nerve tissue alone, but may occur in any or all the tissues of the body, having apparently an especial predilection for the osseous system.

It is obvious that any condition of malnutrition, particularly if existing during the period of embryonal and infantile growth and development, which is sufficiently marked to cause perversion of growth in the complex nervous centres, must necessarily affect the tissues in general. Nervous tissues have relatively greater vitality than the other tissues of the body, and every physician knows that the brain and spinal cord will often functionate after the other structures of the body have been seriously impaired by disease. Nowhere in the range of medicine is the old adage of *mens sana in corpore sano* more aptly illustrated than in the general make-up of the idiot. He is an imperfect creation and, as far as my observations go, often thrown together in a manner quite suggestive of the absence of design.

Consanguinity in its Relation to Deformities in General.— Consanguineous marriages not infrequently result in mental aberrations in the progeny. Dr. Howe states that in 17 families the heads of which were related by blood and intermarried, the result was fearful. Most of the parents were intemperate or scrofulous, and some combined both evils, so that it must be admitted that there were other causes to increase the probability of infirm offspring, besides consanguinity. There were born in these families 95 children, of whom 44 were idiots, 12 were scrofulous and puny, one was deaf and one was a dwarf. In some of the families all the children were either idiotic or very scrofulous and puny. In one family of 8 children 5 were idiotic. The commissioners of idiocy in Connecticut found in 160 cases of idiocy 20 which apparently resulted from consanguineous

marriages. Of these 12 were children of first cousins, 3 of second cousins, 1 of third and 4 of distant relations. Dr. Langdon Down found that out of 753 male idiots 33 were the offspring of first cousins, 3 cases of second cousins, and 4 of third cousins; in all 40 cases out of 753, or rather more than 5 per cent. Of the 295 females, 13 were the children of first cousins, 3 of second cousins, and 4 of third cousins; in all 20 among 295, or little less than 7 per cent. His researches show that in England at least every fourteenth idiot is the child of cousins. The majority of cases of idiocy appear at birth, and many such may be traced to habits or tendencies of ancestors. Often it is difficult to determine in what generation the germs of the disease were planted. Ludwig Dahl, of Norway, in his work on insanity, shows by means of a genealogical tree, how an apparently healthy couple may have children, grandchildren, and great-grandchildren affected with idiocy and insanity.

In reviewing the field of possible causes of idiocy, I am greatly impressed by the apparent influence of consanguineous marriages. Dr. S. M. Bemis, of Louisville, Ky., has found through his examination of statistics supplied by a number of physicians, that among 2,778 children, the fruits of intermarriage of first cousins, 793 were normal; 117 deaf and dumb; 63 blind; 231 idiotic; 24 insane; 44 epileptic; 189 scrofulous; 53 deformed; 637 died early.

Scrofula. — The most common lesion accompanying idiocy is some form of scrofula, such as strumous ulcers, skin eruptions, abscesses, enlarged and suppurating glands, diseases of the eye and ear, these diseases being quite general attendants of idiocy. A very large proportion of persons affected with idiocy die of consumption of the lungs, which is of all diseases most often associated with what may be termed a defective make-up. Dr. Ireland says that at least two-thirds of the idiot class are of scrofulous constitutions. "Is arrested development of brain tissue the result of scrofula, or do scrofula and idiocy proceed from a common cause?" is a question often propounded to physicians. In the light of recent observations, I am personally of the opinion that when the two conditions are associated, they are dependent upon a common cause—never, in my opinion, do they bear the relation to each other of cause and effect. The teeth, as we well know, are affected in their development and growth by scrofula and other constitutional defects. The other organs and tissues of the body may not outwardly show such defects as plainly as do the teeth, but the result of any constitutional disease will nevertheless be apt to exist in a form quite as markedly pathological.

Drunkenness in Parents.—There is a wide variance of opinion among medical men, regarding the probable influence of intemperance of parents in the production of idiocy and allied conditions in their offspring. Dr. Langdon Down is emphatic in his opinion that drunkenness at the time of conception is liable to produce serious results upon the brain of the child. Ludwig Dahl believes that the abuse of brandy in both father and mother is one cause of the large number of idiots in Norway. On the other hand Dr. C. T. Wilber, of the Illinois State Asylum for idiots, states that in 365 idiotic patients 8 only claim drunken parents. Dr. Graham, Superintendent at Earlswood, Eng., also states that he found among 800 inmates of that institution, but 6 cases of idiocy which could be attributed to intemperance of parents. Whether or not drunkenness is responsible for idiocy we cannot decide, but we know positively that intemperate habits are transmitted from generation to generation, each series of progeny in the line of descent showing a lower grade of intellect. As an illustration of the probable influence of intemperance, I cannot do better than quote Dr. Shuttleworth. Considering the intimate and prolonged dependence of the child upon the mother during gestation and nursing, one would suppose *a priori* that maternal rather than paternal drunkenness would count most in production of idiocy.

In the cases which I have tabulated, drunken fathers preponderate in a majority of 13 to 4. Possibly the mental anxiety entailed upon the wife by a drunken husband during the impressionable period of pregnancy may in part explain the discrepancy. Whatever the direct effect of drink upon the fœtus *in utero*, there is little doubt that such nursing as a child is likely to obtain from a drunken mother will intensify any predisposition to mental defect. The baneful practice of giving infants alcoholic drinks seems to prevail to a great extent in Sweden and Norway. Such practice may in part account for the extensive prevalence of idiocy and juvenile insanity in Scandinavia as described by Ludwig Dahl.

Prenatal Influence and Intra-uterine Education. —It is unquestionably a fact that a fright to the mother during pregnancy is occasionally a cause of idiocy in children. Women instinctively shrink from anything which would produce a shock or special mental impression during the period of gestation, fearing for both the mental and physical welfare of the child. Strange to say, the same maternal instinct prevails with the brute creation. Dr. G. H. Fisher has written a complete history of the "Literature, Classification and Description of Human and Brute Monstrosities," including the so-called Parasitic Monster known as "Fœtus in Fœtu," and the various supernumerary formations of parts and organs which are familiar to medical men.[1]

[1] "Many interesting cases are given by this author, including deformities of the upper and lower extremities and internal organs, He states positively that the lower animals may become insane.

The result of the various lesions and pre-natal impressions already mentioned is not only mental in character, but we invariably find arrest of development of brain substance in idiots, imbeciles and feeble-minded children, the different terms indicating the degree of mental development. It is to be observed that a majority of these cases are affected by impressions made upon the fœtus *in utero* through the influence of the parents. A few cases, however, are mentioned as resulting from diseases or injuries occurring soon after birth, or in childhood. If arrest of development of brain tissue occurs *in utero*, or in early childhood, other organs or tissues of the body are likely to be similarly affected. The brain of the idiot is lighter and has fewer convolutions than the normal brain, and also differs in that the convolutions of the idiot's brain correspond on both sides, like the monkey's, while they vary in the normal human brain. The anterior lobes of the cerebral hemispheres are imperfectly developed, and where the head is unusually small the antero-posterior diameter of the cerebral hemispheres is shortened. Irregularity of the two halves of the brain is quite commonly observed.

The cerebellum, pons Varolii, and medulla oblongata, are smaller than normal with almost perfect asymmetry. Not infrequently portions of the brain are altogether absent. Absence of the entire cerebellum and a rudimentary condition of one or both oblivary bodies, peduncles, opticthalami and corpora striata having been noticed. Griesinger, in his work on mental diseases, mentions a number of interesting cases, one of which we will cite. The brain examined was that of a girl 17 years of age, who presented the highest type of idiocy, in conjunction with a generally defective physique. The conditions present were very interesting and may be briefly described as follows: The middle free portion of the corpus collosum was entirely absent, as were also apparently the septum and the middle portion of the fornix. The anterior and white commissures of the gyrus fornicatus were decidedly rudimentary. The convolutions presented an abnormal grouping and the Island of Reil was greatly atrophied. Some of the convolutions were entirely absent. The lobes of the cerebellum were asymmetrical.

Dr. A. Wilmarth, of the Penn. Institute of Feeble-Minded Children, says: "In six brains the Island of Reil was exposed through the defective development of the third frontal convolution; in four cases on two side, in two on one side only. In 18 brains 6 were found where the cerebrum failed to cover the cerebellum from one-eighth to five-eighths of an inch."

I could quote indefinitely from eminent authorities at home and abroad to show that not only are the different structures of the brain of the average idiot atrophied, and often entirely wanting, but that diminution of weight is the rule. Enough cases have been cited to give a general idea of the defects in anatomical structure of the brain of idiots.

Having determined the constant relation of defective cerebral development to idiocy, it remains to be proven whether the defective condition is a special one affecting the brain only, or is an integral part of the generally defective, or maldevelopment, or at least of a general tendency toward such perversions of growth. When we take into consideration the fact that the fœtus is developed in two lateral halves, which may or may not develop harmoniously and may or may not fuse together properly, it becomes logical to presume that any influence which tends to produce inharmony and asymmetry of growth in one part of the body, *e. g.*, the brain, must necessarily tend to produce the same conditions in other portions of the fœtal halves, providing such influence is not a purely local one. The causes of idiocy not being local, but general, the inference is obvious. It is astonishing to me that the superintendents of institutions for feeble-minded have made so little note of the asymmetrical relations of the two lateral halves of the body, in the cases under their care. Personally, I am of the opinion that harmony of members does not generally prevail in the anatomy of the idiot. In examining the inmates of various institutions I was struck with the numerous examples of arrested development, hypertrophy and asymmetry of upper and lower extremities. These abnormal conditions accord with the types of cerebral mal-development already cited. The following cases from other sources confirm the accuracy of these observations:

"Boy of 5½ years. Admitted into the Liverpool Infirmary for Children October 15th, 1878. Weight 10½ lbs.; height 29 inches; intelligence very limited; can utter no articulate sound; eyes large and well-developed, yet he is undoubtedly blind. Sense of hearing apparently normal. He has all his first teeth, but makes no attempt to masticate his food. Forehead does not recede, head is proportionate to size of body; circumference over the occipital protuberance and eyebrows 16 inches. Cannot sit up, the back below the neck being rigid and arched in the lumbar region from tonic contraction of the spinal muscles, pro-

and that heredity and pre-natal shocks have much to do in producing these conditions.

"Innumerable cases of pre-natal shocks producing idiocy where the parents were both apparently healthy are on record. In one case the news of the loss of the husband at sea had the effect of impairing the intellect of the unborn child; again, the same result occurred in another case as a result of fright occasioned by a team of horses running away with the mother when well along *in utero* gestation. Baron Percy, a French military surgeon, observed that out of 92 children whose mothers had been exposed to the terrors of a tremendous cannonade at the siege of Laudau, in 1793, 16 died at the instant of birth; 33 languished from 8 to 10 months and then died before the age of 5 years; and 2 came into the world with numerous fractures of the bones of the limbs."—Trans. N. Y. State Med. Soc. 1865 to '68.

NOTE.—Rawdon, H. G. "Case of dwarfed growth associated with idiocy and congenital tonic contractions of the muscles of the spine and limbs."—British Medical Journal, London, 1879, 1, 386.

ducing a condition resembling opisthotonos. The upper extremities are in a state of rigidity, the limbs have a wasted and shriveled appearance, but the face is not thin. The child has evidently been well cared for. There is no tendency to rickets. Facial and cervical muscles are unaffected.

"The child was affected as described from his birth ; was a twin, but only one-third the size of his fellow twin. He cut his teeth at the usual period. Has had no convulsion or disease of any kind since his birth. He was suckled. Father and mother are healthy and live in the country and their children before and after the birth of this one were healthy and well developed.

" I have thought this case might be of interest to the profession. It certainly seems a curious fact that I should not have been able to discover any report or notice of a case at all similar to this one, and yet I cannot doubt that such cases have from time to time occurred. The case may, perhaps, be regarded as one of intra-uterine blight, but why, or when it took place we can have no means of judging."

(2) Mazier (Edmund).

"On arrest of development in idiocy."

Paris Thesis, No. 452, Paris, 1879.

General conclusions of author :

1. Idiocy consists in an arrest of cerebral development primarily of the nerve centres.

2. This arrest of development may appear at any time of life, uterine or extra-uterine.

3. The organs whose development is incomplete at the time when the arrest of cerebral development occurs are also affected in their development.

4. The anomalies thus resulting consists in the persistence of one of the transitory or rudimental forms through which the body must pass before reaching its complete development.

5. The arrest of development of an organ interferes with its functions, and from this results malformations and numerous organic deviations which constitute a secondary series of anomalies only mediately allied to idiocy.

Obs. 1.—E. P., æt. 16 years, natural child, twin. Had ocular hæmorrhage soon after birth ; convulsions till the age of 7 ; percutient cephalalgia; began to walk when 2 years old ; could speak a little earlier.

Cranium : Antero-posterior diameter 0.18 m, transverse diameter 0.15.

Face : Total length 0.155, occipito mental diam. 0.278. Mouth open. Tongue always protruded between the teeth. Palatine arch is deep and oval.

Genital organs are rudimentary.

Mental condition : Voracious glutton ; is susceptible of education, having learned to read ; cannot write or count. Tries to be useful.

Obs. 2.—P. S., æt. 18, idiot. Mother hysterical, grandfather died of apoplexy, grandmother was a drunkard and died of phthisis. Forehead narrow, temples hollowed. Microcephalic. Began to speak and walk very late. Is very clumsy ; has had convulsions ; is frequently angered. Epileptic vertigo. Chronic ophthalmia. Eyes quite separated. Dentition defective ; superior dental arch is triangular. Teeth are disposed in three rows and are prominent and projecting. Ears small. Nose greatly developed and arched. Forehead receding and depressed.

Cranium : Antero-post., diam. 0.170, transverse diam. 0.137.

Face : Total length 0.127. Extl. orbital line 0.107. Defective formation of the feet and hands, which are flat ; thumbs are thick, short and spatula-like.

Penis well developed ; pubis hairy ; no testicles in scrotum, but can be felt in the inguinal canal on each side.

Mental condition : Masturbator. Does not understand anything. Impulsive, violent, cynical.

Obs. 3.—P. P., æt. 17. Idiot in the 2d degree. Congenital club-foot. At the age of 3 years had meningitis, with convulsions for 15 days, and consequent permanent strabismus. Began to walk at 4, and to speak, very late and with great difficulty. Has had variola, typhoid fever, pleurisy and scrofula.

Head : Well formed, hearing good.

Face : Only two incisors in upper maxillary ; no canines, three molars on each side. Inferior maxillary is narrowed at a level with the premolars (permanent), two canines, gums fungous, spongy and bleeding.

Hands large and purple. Atrophy of testicles. Penis normal.

Obs. 4.—G. D., æt. 21 years. Microcephalic, can speak and read. Cranium rudimentary.

Ant. post. diam. 0.147, transverse diam. 0.118. Face : total length 0.122. Occipito mental 0.202, external orbital line 0.097 ; opening of superior dental arch on a level with the first premolar, 0.027.

Ears well developed.

The superior dental arch is contracted at a level with the molars, and thence divergent, teeth carious. Finger-nails curved like claws. Thumb of right hand is upon the same plane as the other fingers, and its dorsal face is turned backwards. Feet long, flat, narrow and misshapen.

Mental condition : Intellectual faculties nil. Tries to attack attention. Has had instincts.

Obs. 5.—L. L., æt. 13. Imbecile. Scrofulous constitution. Double convergent ; strabismus very marked. Ears largely developed. Palatine arch high, regularly oval and deep.

Superior maxilla large and thick, and its teeth carious. No canines. Tonsils large, with atrophy of uvula. Genital organs atrophied, single tes-

ticle in scrotum. Belly large and pendulous. Is able to read and write some. Has had instincts and is easily angered.

Obs. 6.—G. S. æt. 16, imbecile, deaf, internal strabismus.

Head normal. Face long, 0.152, width 1.075, occipito mental diam. 0.233; dental arch at a level with the first molar, 0.022.

Ears long. Mouth always open.

Superior dental arch narrowed, palatine arch oval and deep, tonsils enormous, teeth carious and irregularly disposed. Superior prognathism. Lips thick, the inferior is hanging. Intellect susceptible of development. Has had instincts.

Obs. 7.—L. O., æt. 16. Complete idiot, deaf and dumb. Head quite large. Eyes most always closed; strabismus. Convulsions four days after birth, daily attacks till the age of 18 months. Left hemiplegia and right hemichorea. Could walk at 2½ years. Has a deaf sister who has a hare lip. Ptyalism: face asymmetric, more developed on right side. Cranium: Ant. post. diam. 0.165, transverse 0.135. Intellectual faculties nil.

Obs. 8.—F. N., æt. 15. Scrofulous constitution. Microcephalic. Cranium: Post. diam. 0.145, transverse diam. 0.127. Face: Length 0.126, occipito mental diam. 0.222, external orbital line 0.101.

Dental arch on a level with first premolar.

Chronic blepharitis.

Mental condition: can speak, hear, and reads a little, but cannot write nor count. Incapable of the least mental effort.

Obs. 9.—A. B., æt. 10. Superior and inferior prognathism, still has his first teeth which are quite regular. Intellectual faculties nil.

N. B. The measurements are in the metric system.

There are seven other cases almost precisely similar to the above, given in the same work, but it is unnecessary to quote them.

A paper by Dr. G. E. Shuttleworth, England, presented before the International Health Exhibition, London, Aug. 2, 1884, upon "The Health and Physical Development of Idiots as compared with Mentally Sound Children of the same Age," he says, "Many idiots are undoubtedly small at birth, not a few have been brought into the world prematurely, but in nearly all, imperfections of functions interfere with due nutrition and development, as the following table will demonstrate:

Report of Cases of Arrested Development and Excessive Growth of all the Tissues, in Connection with Idiocy, Imbecile and Feeble-minded Children.

Table shows the Relative Mean Stature and Weight of the general population and of 1,209 Idiots and Imbeciles in Earlswood, Royal Albert, and Larbert Asylums.

Age last Birthday.	Height.				Weight.			
	General Population.		Idiots and Imbeciles.		General Population.		Idiots and Imbeciles.	
	Inches.		Inches.		Pounds.		Pounds.	
	Males	Females	Males	Females	Males.	Females.	Males.	Females.
5	41.0	40.55	40.0	39.5	. . .	39.2	39.0	37.5
6	43.0	42.88	42.25	41.25	. . .	41.7	43.0	41.0
7	45.0	44.45	44.0	43.25	. . .	47.5	46.5	45.0
8	47.0	46.60	45.75	45.25	55.0	52.1	50.5	49.0
9	49.0	48.73	47.5	47.5	60.0	55.5	55.5	53.0
10	51.0	51.05	49.0	49.0	65.0	62.9	59.0	59.0
11	53.0	53.10	51.0	51.0	70.0	68.1	64.5	66.0
12	55.0	55.66	52.5	53.0	77.5	76.4	70.5	72.0
13	57.5	57.77	54.75	55.0	85.0	87.2	77.0	80.0
14	60.0	59.80	56.5	56.5	92.5	96.7	85.5	88.0
15	62.0	60.93	59.25	58.0	102.5	106.3	94.5	95.0
16	64.0	61.75	60.75	59.0	117.5	113.1	103.0	102.0
17	65.5	62.52	62.5	59.25	135.0	115.5	110.0	106.0
18	66.5	62.44	63.25	. . . .	142.5	121.1	116.0	108.0
19	67.0	62.75	63.25	. . . .	143.7	123.8	120.5	108.5
20	67.25	62.98	64.0	59.5	145.0	123.4	121.5	108.5
21	67.5	63.03	64.25	. . . .	146.2	121.8	122.0	. . .
22	. . . .	62.87	64.5	. . . .	147.5	123.4	122.5	. . .
23	. . . .	63.01	. . . .	. . . .	148.7	124.1	. . . .	. . .
24	. . . .	62.70	. . . .	. . . .	150.0	126.8	. . . .	. . .
25–30	67.75	62.02	64.75	59.75	151.2	120.0	123.0	109.0
30–40	. . . .	. . . .	. . . .	. . . .	152.5	120.8	. . . .	. . .
40–50	. . . .	61.15	. . . .	. . . .	155.0	118.6	. . . .	. . .
50–60	68.0	. . . .	. . . .	. . . .	157.5	104.0	. . . .	. . .

It will be observed that idiots are shorter than the general population: at 5 years, by 1 inch; at 10 years, by 2 inches; at 15, by 3 inches; at 20, by 3 inches. While, as regards weight, male idiots are lighter than the general population: at 8 years, by 4½ pounds; at 10 years, by 6 pounds; at 15 years, by 8 pounds; at 20 years, by 23½ pounds, the disparity being greater in the male than in the female sex. It appears that the relative rate of growth of the two sexes of idiot children follows the same rule as that of normal children, and is subject to the same variations at the age of puberty, for two years preceding which the growth of girls is in excess of that of boys.

ABNORMALLY SHAPED HEADS.

If the mental capacity could in all instances be measured by the size and form of the head, many among the idiotic would rank high. The shape and size of the skull is indicative of the mind only in a general way, the feeble minded being about equally divided between abnormally large and small heads. The measurement of the ordinary well-balanced head ranges from 20 to 36 inches in circumference, and that of the idiotic head from 12 to 26 inches. Opinions vary in regard to the average size of the microcephalic idiots, some claiming that all heads of 16 inches and under come under this class, and others that 13 inches in circumference is the average microcephalic head, while upon the other hand, all heads which measure more than 36 inches in circumference would be considered either macrocephalic or hydrocephalic.

The extreme cases are comparatively few in the institutions. Out of 600 inmates of the

Pennsylvania Institution, at Elwyn, which I examined with the assistance of the superintendent, Dr. I. N. Kerlin, and Dr. Wilmarth, I found but 28 microcephalic, 24 macrocephalic and 3 hydrocephalic cases. We shall find these extreme cases exceedingly interesting in the study of the etiology of irregularities of the teeth, and shall give special attention to their relations later. There is a certain size of the head, below which an individual must be an idiot. Voisin says, "that the proper exercise of the intellectual qualities is impossible with a head of from 11 to 13 inches in circumference, and a measurement of 8 to 9 inches from the root of the nose to the posterior border of the occipital bone." Irregularities in the external surface of the cranium predominate in every idiotic head, and in such variety that no two heads are found alike. These conditions show a want of development of the brain. The brain substance being the first to obtain its growth, the cranial bones are moulded about it, and are in a manner supported by it until the sutures have united. If the brain be slow in developing and shaping, ossification of the sutures is retarded; should the brain or parts of it be retarded in growth, the cranium would be either microcephalic or asymmetrical in its development. Again, inharmonious closure of sutures may also produce unilateral contractions of the bones of the head. I do not wish to convey the idea, however, that asymmetry in the cranium is always the result of malformation of brain tissue, as by far the majority of cases result from arrested development or interruption in the growth of bone tissue. *Per contra*, I am well aware that perfectly symmetrical heads are rare in even normal individuals. The diagrams in possession of our hatters tell a woful tale, not at all flattering to our racial self-conceit! This retarded growth may result from constitutional disturbances acting unfavorably upon general nutrition, or from inflammatory conditions of the osteophytic membrane which may take place *in utero*, thus prematurely closing the sutures. There is no law governing the development of the brain and the closing of the cranial sutures. Those bones, the sutures of which close before the proper time, will be narrowed at the point of premature fusion. It is reasonable to expect, that when bones prematurely ossify at one part of the cranium, dilatation will take place directly opposite, as the brain grows in the direction of the least resistance. This explains many peculiar deformities of the head; again, if the majority of the sutures ossify prematurely, microcephalus may result. It appears reasonable, also, to infer that the shape of the basis cranii will be affected in a similar manner by too early or too late ossification. These changes are caused by improper nutrition of the bones and cartilage. A knowledge of this fact gives us a clear conception of the relation which various general conditions bear to idiocy and imperfect development in general. The influence of such perversion of nutrition as are produced by syphilis, tuberculosis, struma and intemperance over the ossification and growth of bone is a most potent one. The shape of the base of the skull and the contour of the face depend largely upon the ossification of the sutures. When ossification of the cartilages occurs early, a shortening of the basis cranii results. Especially is this the case when premature ossification occurs in connection with the sphenoid bone. The age, when the basilar portion ossifies in a normal subject is from 15 to 20 years. Thus too early ossification naturally produces a shortening in the antero-posterior direction which cause serious deformities in the shape of the face, and an abnormal curvature at the base of the brain. The superior maxillary bones are attached to the bones of the head and face by eight articulations, and as the ossification of the sutures occurs at about the same time as the ossification of the sutures of the basis cranii, the same influences which affect the cranium must also affect the superior maxilla. These conditions may account for family features not presenting themselves until middle age. This is a strong argument in favor of postponing the operation of regulating teeth until the contour of the face has been permanently established. When there is inflammation of the membrane *in utero* (which is of common occurrence), the sutures ossify before or soon after birth, and as a result the base of the cranium will assume and remain in, an undeveloped condition, causing the face to present an abnormal shape and size, which will broaden the face, throw the cheek bones out prominently, make the nose broad, flat and sunken, and extend the space between the eyes, giving as a whole a face void of expression. When the sutures at the base of the skull ossify normally the antero posterior diameter is longer, the base of the cranium is more angular, the features sharper, with the eyes closely set, and a face full of expression. The sphenoid bone does not attain its full size until from the 25th to the 30th year of age.

I am of opinion that when the bones at the basis cranii ossify before, or shortly after birth, the superior maxilla and septum nasi assume a decidedly unnatural form. Dr. Oakley Coles, in his work upon "Deformities of the Mouth," ascribes the different deformities of the jaw to premature ossification either of the sutures or the basis cranii, thus he says, "that the deformity known as inter-maxillary prognathism is the result of a force operating on the inter-maxillary bone, such force originating in the body of the sphenoid and being transmitted by the intervening nasal septum."

He says, also, page 95, "After carefully exam-

ining the works of various writers on the subject of microcephalic idiocy, there seems sufficient evidence to justify the belief that premature ossification of the sutures is the rule in a majority of cases of microcephalus, and we may, therefore, assume if we cannot absolutely conclude, that this influence operates powerfully in the production of the dental deformity known as the lambdoid jaw" or V-shaped arch.

While, as has already been observed, I belief that premature ossification of the sutures and basis cranii is followed by deformities of the jaw and septum nasi, I do not think that they bear to each other the relation of cause and effect. In this I beg leave to differ with Dr. Coles. It is unnecessary to expatiate upon this subject in the present paper, as it will be the principal topic for discussion in another which I hope to present later on.

RÉSUMÉ.

1. Irregularities of the teeth cannot be justly said to be of congenital origin since they do not exist at birth.

2. Irregularities of the teeth cannot occur until they have erupted, and thus shown their relation to each other and to the jaw.

3. Irregularities of the teeth, which I have denominated constitutional, prevail to a greater extent among the idiotic, deaf and dumb, and blind, than among an equal number of strong and healthy persons.

4. It may be seen that not only is the brain matter deficient in the feeble-minded, but, as I have noted, many cases are seen which demonstrate that the osseous system is also generally defective.

5. Arrest of development is the result of malnutrition during embryonal and infantile growth influenced by consanguineous marriages, scrofula, drunkenness in parents, pre-natal influences, intra-uterine education and constitutional diseases, or of inflammation of the osteophytic membranes *in utero*.

6. Irregularities of the teeth do not exist among normal or large jaws, while among those who have abnormally small jaws, the majority have irregular teeth.

7. When premature ossification of the sutures at the basis cranii takes place, the antero-posterior diameter is shortened, producing arrested development of the superior maxilla.

8. When the bone tissue is arrested in development from malnutrition, the maxillary bones are also affected.

9. When arrested, development of the superior maxilla occurs, the face often presents a sunken appearance at the angle and root of the nose, with the nose broadened and the inferior maxilla prominent.

10. In another paper I shall attempt to prove that the irregularities of the teeth, called constitutional, are the results of small maxilla, and that Dr. Hammond's future man will not only lack hair and teeth, but the superior maxilla will gradually decrease in size and eventually become rudimentary.

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DR. J. S. MARSHALL, Chicago: I have listened with great interest to the subject just presented by my friend, Dr. Talbot. I believe he is correct when he says the causes of irregularities are: "First, those developed with the formation of the osseous system and due to constitutional causes; and, Second, those produced by local causes;" but cannot agree with him in his objections to the use of the term *congenital*, as used by the English authors quoted, when they say, certain forms of irregularities are congenital, or of congenital origin. The author would confine the term to very narrow limits,—to conditions which are present and discernible at birth only. The inherited small superior maxillæ, which upon the eruption of the permanent teeth cause irregularities is, nevertheless, a congenital defect of conformation, though the evidence of this may not be at first apparent. I can therefore see no impropriety in this use of the term, and I think the etymology of the word will bear out the correctness of its use in this connection. Congenital causes would therefore be those which occur during generation, and may arise from hereditary predisposition, or inherited tendencies or defective conformation. Acquired causes would be those which occur after

birth, the result of disease or accident. The terms congenital and acquired, would seem to cover the subject as completely as could be desired.

The special point in the paper, however, which interested me most is that in which he claims the superior maxillæ are gradually decreasing in size and that eventually they will become rudimentary. I am not prepared to admit the correctness of these views. The thought is repulsive. What would such a condition mean? Hideous deformity. The marring of features which God created in his own image, and I cannot believe that He would afterwards so disfigure his handiwork. I am willing to admit, however, that I have seen a goodly number of such cases as the author refers to; but these were cases in which the individual had inherited the small maxillæ of one parent with the large teeth of the other, or were the result of arrested development caused by congenital or acquired idiotcy.

The first named cause of this form of defective conformation I think is more commonly seen in America than elsewhere, and is due to the effects of the intermarriage of indivduals from so many different races and nations, who have been brought together through immigration, under the same social system.

The Caucasian race is divided into a number of quite distinct families or national types; the English, the German, the Scandinavian, the Irish, etc., and each has a peculiar cast or type of features which indicate to which of these nations it belongs, while the size and shape of the maxillæ play a very important part in determining the type. The alveolar arch of the English forms very nearly one-half of an elipsis; in the German the arch is broader through the canine region, as is also that of the Scandinavian, and approaches more nearly a half circle, while in the Irish the curve is flattened in the incisive region and quite angular in the region of the cuspids. These types of features are all so marked as to be readily distinguished by even the casual observer. They are national peculiarities and will remain distinctive so long as miscegenation is not practiced to any great extent, for they are the natural result of centuries of intermarriage or breeding with people of the same type.

America, or more correctly speaking, the United States of America, cannot yet boast of a type of face that can be strictly called American. The features of the people are in a transition state. The mixture of blood has been so constant and so diverse, ever since the settlement of the country, that the original national peculiarities of features of the various nations represented are gradually being modified.

In Virginia, which was settled by the English and whose people have kept the original blood tolerably pure, we find a type which differs but slightly from that of their English cousins, no more so than might be expected from the change of environment. In New England where the mixture of blood was quite diverse, there is seen an effort upon the part of Nature to establish a national type; but this is only the beginning. Two centuries is not time enough to assimilate and remodel such a heterogenous mixture of conflicting elements. The crossing of races of men changes the size, form, mental capacity and physical endurance. In the crossing of distinct races, as for instance the Anglo-Saxon with the Negro, the size, form and mental capacity of the lower order may be improved, but the physical endurance (to labor or resist disease) has been lowered. This fact was generally recognized by the slave buyers before the abolition of slavery in this country, and consequently they never bought mulattoes for hard work in the rice fields or upon sugar plantations. On the other hand, the Anglo-Saxon element is not improved by the admixture of Negro blood.

Breeders of fast horses never cross their stock with an inferior breed—cart horses, Norman, for instance, but in order to improve the speed, form and endurance, they chose the finest animals of the same stock or general type, carefully selecting those having the finest points and which complement each other. In this way the stock is gradually improved in all those characteristics most desirable. This is known as selective breeding, but if confined to too narrow limits a few generations only is required before the stock begins to degenerate. Marked illustrations of this in the human family may be found in the degeneration of some of the royal and noble families of Europe, where, for political reasons, or for the sake of entailing property, they have intermarried for several generations. The insane asylums and institutions for the feeble minded give the result.

The author also says that "the teeth retain the same size and shape that they had 3,000 years ago." This, I believe, is in a relative sense true, but I cannot believe that the superior maxillæ on the other hand are growing smaller and the teeth retaining the usual size. I think he has made the mistake of drawing conclusions from isolated cases and conditions which are only transitory, steps in the processes of Nature in establishing and perfecting a new type. As I said before, we have no national type of features in America, and it will require centuries to produce one, but when that type shall have been perfected all its parts will be in harmony; there will be no such deformed physiognomy as that pictured in the paper, but rather a higher type of Anglo-Saxon beauty.

The Anglo-Saxon is the dominant race and destined to rule the world. It is stamping its peculiarities upon every race and nation with which it comes in contact, and is no less surely impressing its mental and physical characteristics

upon those people with whom it mixes its blood. This will account for the change taking place in the features and consequently in the maxillary bones and alveolar arches, of the inhabitants of this country.

The parent of the strongest characteristics usually dominates the character of the offspring. This is equally true of men and the lower animals, and none the less true of the races of mankind. If the same care could be exercised in the selection of individuals desiring to enter into matrimonial relations that is always insisted upon in the selective breeding of horses, the congenital or constitutional causes of irregularities of the teeth, as well as other and graver constitutional defects, would soon pass away and the maxillary bones and the teeth would be in perfect harmony. But so long as men and women are permitted to enter the matrimonial state with no thought as to their fitness for such relations or the well-being of the offspring likely to be born to them, such deformities and constitutional defects will continue to exist, but not indefinitely. Nature will, in spite of this, through her moulding and assimilating processes, harmonize all discordant elements of feature and form, and produce in time a national type of face and jaws in which deformities of this class will no longer exist.

AN INTERESTING CASE OF FIBROMA OF THE LARYNX.

Read in the Section on Otology and Laryngology, at the Thirty-Ninth Annual Meeting of the American Medical Association, May, 1888.

BY JOSEPH EICHBERG, M.D.,
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W. S., the subject of this sketch, whom I present to the Section for further examination, first came under my observation on the 23d of September, of last year, with the following history: The boy, who had always enjoyed fair health, and was well developed and nourished for his years, was taken down on the 28th of June, 1887, with a very severe attack of scarlet fever, associated with diphtheritic symptoms of the most pronounced type, followed by severe hæmorrhage from the ulcerated patches. These hæmorrhages occurring during the period of convalescence required the hypodermic use of ergotin before they were finally arrested.

The convalescence having progressed so far as to permit of the patient's travelling, he left the city on the 7th of August, in company with other members of his family, and of Dr. Judkins, by whom I was subsequently called in council, and whose care and interest in the case has not flagged since its inception. The voice then, and prior to his illness, had been somewhat hoarse, though there had been no particular embarrassment of respiration.

It was intended to pass the summer at Atlantic City. So feeble had the little patient become, that he could neither feed himself, nor walk, at the time of leaving home. Within three days of his arrival at the seashore a marked improvement was noted, but there was scarcely any audible voice.

On the 18th of August, as the result, it was thought, of undue exposure, the boy was suddenly seized with most distressing spasmodic breathing, a hoarse, barking cough, and dyspnœa; so that it was feared a fresh membranous exudation had occurred in the interior of the larynx.

The difficulty of breathing gradually increasing, assistance was telegraphed for from Philadelphia, whither the boy was removed on the 21st of August, and tracheotomy was performed, under the advice of Dr. Meigs, by Dr. Wharton. So imminent seemed the danger that no time was taken to produce anæsthesia, and the carbonic acid poisoning had reached such a stage that, in his own words, he never felt the operation.

The dyspnœa was relieved at once, but the boy's strength again gave way and it was two weeks before he could leave his bed. The first attempt to withdraw the tube was made three weeks after the operation. In less than forty-five minutes the peculiar hoarse breathing again manifested itself, requiring the reinsertion of the tube. The effort to establish laryngeal breathing by plugging the orifice of the tube with a cork likewise proved unsuccessful, and the patient was then taken to an eminent laryngologist, who found the larynx "occluded at its upper orifice by morbid growth, which he presumed to be what is known as papilloma." A piece of this mass was removed by forceps for microscopic examination. This was on the 21st of September.

The boy was brought home on the following day and the first examination showed the entrance of the larynx to be almost entirely occupied by a pinkish mass, attached by a broad base to the middle and posterior part of the left ventricular band; completely overhanging the parts below, so that there was but a small chink along the right ary-epiglottic fold, through which an entering current of air could find passage.

On the 26th of September the loop of the galvano-caustic holder was passed over the growth, and the larger portion of the mass cut off with the snare without the aid of the current. Very little resistance was encountered in drawing the loop and only a slight hæmorrhage followed. The ease of division of the growth awakened some suspicion of malignancy, which was strengthened by the microscopic examination.

The portion of the tissue removed measured $\frac{3}{8}$ inch in length, $\frac{1}{4}$ inch in width and was $\frac{3}{16}$ inch high. The microscope showed the growth to be covered with a layer of stratified pavement epithelium, consisting in some places of as many as

ten layers of cells loosely attached to the subjacent mass of the growth. "The tumor itself consists almost entirely of a young and rapidly-growing connective tissue, made up of round cells enclosed in the meshes of a finely fibrillated connective tissue.

"Distributed throughout the growth in considerable masses are glandular ducts and acini (probably from hypertrophied mucous glands). These are made up of short columnar epithelium, and their walls are infiltrated with the round-celled proliferation. The blood-vessels are not very abundant and the walls of the larger ones show some connective tissue thickening. In certain areas there are signs of breaking down, where collections of granular débris with isolated round cells and free nuclei are seen." A note was made at the time that were it not for the presence of such abundant fibrillated connective tissue there would be no hesitation in classing the growth as a round-celled sarcoma. No appearance of papillary overgrowth was anywhere manifest. The nature of the tumor was such as to lead to some fear for the outcome of the case entirely irrespective of the local obstruction occasioned by its position. The report of the fragment removed in Philadelphia, examined at the Army Medical Museum, was, in the main, identical with our own observations.

Somewhat fearful of the result, yet anxious to eradicate the growth if possible, the remaining portion of the base of the tumor was cauterized with the galvano-caustic wire on three separate occasions, and we soon had the satisfaction of seeing the continuity of normal mucous membrane restored, with no indication of a recurrence since that time.

The clearing of the larynx had not put an end to the difficulties in the management of the case. The patient had now worn his tracheal tube about seven weeks, and would not tolerate its removal, nor could he wear the cork for more than half a minute without manifesting alarming signs of dyspnœa.

In view of the possibility of other similar growths below the vocal cords, a metallic probe, suitably bent, was on two occasions (toward the end of October) passed through the tracheal wound, through the larynx and into the pharynx, until its rounded end was plainly visible. No obstruction was encountered.

Another experiment was made to free the patient from the incumbrance of the tube by recourse to intubation. It was thought that if an intubation tube could be inserted between the cords the external wound would close, and the metallic tube between the cords could then be withdrawn. Two attempts were made, both under ether. The tracheotomy tube having been withdrawn, the intubation tube was introduced into the larynx, but could not be passed below the cords. Either from the effect of ether, or from the irritation of the instrument, or from paralysis of some of the muscles, a spasm of the glottis was set up, which rendered it impossible to push the tube down without the use of force, and this was not considered advisable.

Small localized overgrowths of granulation tissue in the track of the canula were easily controlled from time to time by the actual cautery. There was now some difficulty in obtaining a satisfactory view of the larynx owing to the depressed position of the epiglottis, a condition frequently observed after tracheotomy. The difficulty in this case was possibly increased by a slight cicatricial contraction in the left side of the larynx. When clearly seen, the larynx was found to be entirely free from neoplasms, and the left cord had resumed its normal appearance, though almost stationary in a position of adduction, the right moving slightly, but in a very limited arc.

The inner tube of the canula was now removed and the boy encouraged to use his voice, if possible, the tracheal orifice being closed by the finger, while the expiratory current passed through the fenestrum in the outer tube. Several changes were made in the position of this fenestrum, until it was found to correspond exactly with the tracheal lumen.

Faradization of the larynx was begun in the latter part of December, and has been continued with very little interruption, the sittings lasting about ten minutes twice a day. In January the patient was seen by another laryngologist, of New York, who found, in addition to what has been described, a slight swelling of the free edge and under surface of the cord.

The point of interest to the patient and his family was the withdrawal of the tube. Repeated trials with the cork had always produced a suffocative spasm, yet he was able to breathe comfortably, while his tube was being cleaned, for about ten minutes. It was evident that a nervous element entered largely into his inability to wear the cork. On the 26th of February, his attention being otherwise engaged, he wore the cork for eight minutes; that same afternoon for an hour, and, having once gained confidence in himself, for two, three, and four and a half hours at a time. Now he can keep it in place while eating and attending to his ordinary school duties.

Since the early part of March he has been taking minute doses of strychnine, which he bears very well, and latterly the tracheal end of the tube has been gradually shortened, so that it now passes just below the border of the tracheal wound.

How and when are we to get definitely rid of the tube? This is the all-important question for the patient and his friends; they find it difficult to reconcile the assurances of steady improvement constantly given by the physicians with the fact

that the boy is not yet able to dispense with his tube. The answer to the question must depend on the cause of the difficulty.

We have to consider the following possibilities:[1]

1. A narrowing or complete obliteration of the passages of the larynx by a growth of granulations above and around the canula.

2. An impairment or complete loss of those functions of the larynx which regulate the admission of air through the rima glottidis.

3. Adhesion of the opposed surfaces of the cords.

4. Nervousness and spasm.

5. Collapse or flattening of the tracheal walls in consequence of too extensive division of tracheal rings.

6. Cicatricial contraction of trachea about the incision and the end of the tube.

From the boy's ability to pass several hours in comparative comfort with the cork in the tube during the day, the inference is plain that the obstruction is not in the parts above the tube. Phonation is clear and fairly good; the pitch of the voice is, however, altered, owing to the peculiar conditions present. There are no granulations in the track of the tube, nor is there pain about its lower orifice. The expectoration which comes through the tube is not tinged with blood, as it would probably be were granulations present. Often this expectoration is easily expelled through the mouth.

There seems to be no great amount of cicatricial tissue about the tracheal wound, though this is sometimes present in great abundance, as in the case reported by Stenier, where the growth of fibroid tissue acquired dimensions of half an inch. No folds of mucuous membrane, owing to the relaxed condition of this tissue, can be discovered by the probe or by laryngoscopic examination; and the only apparent causes that prevent the withdrawal of the tube are the condition of paresis of the abductors of the cords and the nervous element in the case,

Considerable attention has very justly been called by nearly all writers upon the subject to this last factor in the management of all cases of delayed removal of the tube. It certainly enters very considerably into the present case; and its importance was impressed upon me by a case seen about four years ago, in which there was retention of the tube after diphtheritic croup. In that instance, the child, three years of age, would not tolerate the withdrawal of the tube for more than five minutes. Efforts to substitute an intubation tube for the canula proved fruitless owing to the impossibility of inserting the tube.

The little patient went on in comparative comfort for about a year. The father, a brewery hand, returned home, one evening, strongly intoxicated. Enraged at the sight of the tube, he withdrew it rather roughly and threw it across the room; at the same time threatening with dreadful punishment every one who should endeavor to replace it. Terrified beyond measure, forgetting about her own condition under the impulse of alarm that controlled her, the little girl breathed easily for the remainder of the evening and required no further attention.

Another case reported by Lovett,[2] falls into the same category. A girl three years old, had tracheotomy performed May 1, 1881, for croup. The tube was removed the seventh day, and left out for about forty minutes, when it had to be reinserted. May 15th another trial was made unsuccessfully. June 3d the trachea was stitched to the edges of the skin wound, yet the tube had to be replaced. Several other unsuccessful attempts were made to remove the tube, and the child was finally dismissed. One evening, July 19, 1883, two years after her discharge from the hospital, after the mother had cleaned the tube preparatory to replacing it, the child said: "I do not want it any more; you need not put it in," and never had any trouble.

The dependence upon the tube becomes so great in these cases that it is easy to understand the nervousness which follows any attempt at withdrawal; and the most difficult part of the treatment seems to be the establishment of self-confidence on the part of the patient himself. In very young children this may be accomplished by subterfuge, or the patient controlled by fear; in older patients, however, the difficulty is greater.

Some attention is to be paid to the disused muscles, which have become weakened through long inaction, until, as in our own case, a condition of more or less complete paralysis of the abductors result. The corking of the canula, and the use of the larynx for phonation and respiration will, doubtless, assist in overcoming this difficulty. It is true that Trousseau has condemned the fenestrum in the tube as a useless and mischievous thing, as its sharp edges always cause irritation; but care in the location of the fenestrum, so that its edges have no point of contact with the soft tissue and a little mechanical skill in rounding the opening will overcome this objection.

The trying time for all the patients seems to be the period of sleep. Many succeed in passing the day very comfortably, but have paroxysms of dyspnœa as soon as the recumbent position is assumed, or when they eventually fall asleep. A certain amount of attention seems requisite to preserve the regular action of the paretic laryngeal muscles; and long continued exercise is often necessary before the desired result can be obtained.

I do not know that we can express in figures, or have any collected statistics bearing on, the proportion of cases in which the ultimate removal has been effected; but, while its withdrawal

[1] Tupper. Boston M. and S. Jour., 1886.

[2] Boston M. and S., June, 1886.

is manifestly desirable, existence can be easily maintained for long periods with the tube *in situ*. Thus Uhde[3] reports a case where the canula was worn for forty years; and Brinton[4] and Morton each mention a case of twenty years' standing. These statements contrast rather strongly with the announcement made by Mongot to the French Academy, that few children reach adult age after tracheotomy; a statement based on the great rarity of the characteristic cicatrix among a larger number of French conscripts.

There is but one point more to consider and that is the condition of the patient, after removal of the tube has been successfully accomplished. The anxiety that has attended the progress of the case, will even then not be entirely allayed, for some peril still hangs over the patient. Fleiner[5] in an elaborate article on "Stenosis of the Trachea after Tracheotomy" mentions a number of cases, in which there was sudden dyspnœa weeks or even months after the removal of the tube. At no time following its removal, until after the lapse of several months are we safe from the danger of sudden asphyxia, and the prognosis must be carefully held in reserve. Ross reports fourteen cases of polypi developing at the site of the cicatrix after tracheotomy; of these, four died before a second tracheotomy could be made; seven had a second tracheotomy (with five recoveries), two had a third operation and are still wearing the tubes. In forty cases of excessive granulation-growths from all sources, where the tube was worn for at least two months, sixteen were fatal, nineteen were cured and five are still wearing the tubes.

Dr. Lovett closes his article upon the subject with the statement that the treatment has been as varied as it has been inefficient. This is a rather discouraging view to take of the matter, and one that can hardly be sustained. Patience and perseverance, with a little help on the part of the patient, will yet succeed in overcoming the difficulties in many an unpromising case.

MEDICO-LEGAL ASPECTS OF SOME INJURIES OF THE SPINAL CORD.

Read before the Chicago Medico-Legal Society, October 6, 1888.

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Within a period of five years English railway companies have paid in damages in cases of alleged injury to the spinal cord, the enormous sum of £2,200,000, or $11,000,000. In our own city, the greatest railway center in the world, and in other parts of our country, large sums have been paid as compensatory damages in similar cases. $300,000 it is said were paid to the sufferers in the Chatsworth accident, and the largest individual damages were paid in settlement of cases of spinal injury. Specific instances of the enormous sums which have been awarded to this class of obscure injuries are:

Case of Waterman vs. the Chicago & Alton R. R.—The plaintiff claimed large damages for spinal concussion said to be produced in an accident. Dr. Clark Gapen and other experts testified that injury was the cause of the patient's symptoms, while Drs. Senn and Whiting testifying as experts for the defense agreed in stating that the patient had locomotor ataxia. A verdict of $23,000 was awarded.

Case of Holland vs. the Chicago & Eastern R. R.—The plaintiff, an employé of another line, was injured in a collision and afterward reported for work apparently well. He was not given employment. Shortly after this it was claimed that symptoms of spinal concussion developed and permanent disability followed. Large damages were claimed and the plaintiff was awarded the sum of $23,000.

Case of Rozenzweig vs. the Lake Shore & Michigan Southern R. R.—The plaintiff having been put off a train at a place not a regular station, was walking across the tracks, and either tripped over some object or was knocked down, he did not know which. Spinal injury of an obscure type was alleged and heavy damages awarded. The case after final appeal to the Supreme Court of the State, was settled by the road paying to the plaintiff $48,500 with interest, or in all over $50,000 compensation.

Case of Phillips vs. the London & Southwestern Ry.—The plaintiff, a physician, was disabled about two years by a railway injury to the spinal cord. It was proved that he had possessed a practice worth $40,000 per annum, and a verdict of $80,000 was given. Dr. Steele, who has met Dr. Phillips during the past summer, informs us that he is, except for a slight lameness, quite restored to health.

In examining the expert medical evidence in the above cases one cannot but see the over-shadowing influence of the theories laid down by Erichsen in his work on "Concussion of the Spine." A careful and comparative examination of these theories of Erichsen with those of later investigators in neuro-pathological fields may be of interest.

Erichsen teaches, that there are two opposite and distinct conditions produced in the spinal cord by injuries. In one there are all the usual and visible effects of traumatism elsewhere—laceration of tissue, hæmorrhage into the spinal canal or substance of the cord and inflammation of the cord and membranes. In the other there

[3] Deut. Med. Woch. 1885.
[4] Phil. Med. Times. 1886.
[5] Arch. f. Klin. Chirurg.

are no definite structural changes, but only that condition which he describes under the term "anæmia of the cord," and which he himself admits can only be inferred and is not a well-proved pathological fact.

Cases of the first class, viz., those in which definite structural changes are produced, always give rise in his opinion to definite symptoms and are easily recognizable pathological states. In his ideas of the gross pathology we find nothing essentially different from the views of the older pathologists. Thus we find him describing the condition produced by myelitis as softening of the cord, notwithstanding the fact that modern investigation has shown that inflammation does not always produce softening, and that the latter may exist without myelitis. (Gowers.)

Grosser structural lesions are not the condition, however, which have given rise to conflicts of medical evidence. It is upon Erichsen's description of the second class of cases, viz., those in which there are no visible structural alterations, that the greatest and most numerous claims for compensation have been built up. It is well therefore, in view of the conflicts of opinion which have arisen, carefully to examine the evidence as to the existence of this second class of cases, described under the term "anæmia of the cord."

Accuracy in the use of scientific terms, may properly be demanded in a work which is so often quoted in medico-legal contentions. How much evidence is there then of the existence of any such pathological conditions as "anæmia of the cord?" Dana in his latest writings asserts: "Chronic spinal anæmia can hardly be placed in the category of distinct spinal affections." Gowers, in his work just from the press, embodying the results of original and exhaustive research says, in discussing anæmia and hyperæmia of the cord: "The condition of the vessels of the spinal cord after death affords no indication whatever of their state during life. . . . . Local variation occurs only in the local hyperæmia which attends inflammation and the anæmia which results from pressure; hence the occurrence of variations in the state of the vessels of the cord and the effects that such variations may produce are matters of inference from symptoms observed during life, symptoms that are themselves open to various interpretations. Where the ground is barren of facts, theory is always luxuriant. Anæmia or congestion of the cord affords a ready explanation of symptoms, the cause of which is unknown, and it is scarcely surprising, therefore, that such an explanation has often been given. Some surprise may, however, reasonably be felt at the absolute confidence and precision of detail with which these states have been invoked as morbid processes, when the opinions expressed rest not upon one tittle of definite evidence. Positive assertions always receive some credence, however unwarranted the assertions may be, and positions incapable of proof are also sometimes incapable of disproof. It would be futile and useless to attempt to refute in detail the various statements that have been made regarding anæmia and hyperæmia of the spinal cord. . . . . We know nothing of it as an independent condition; nevertheless, volumes might be filled by the collected descriptions of the varieties and symptoms, descriptions in which the unrestricted play of "scientific" fancy has elaborated a symptomatology for the separate congestion of every part of the spinal cord." It is doubtful if any symptoms can be, with confidence, assigned to mechanical congestion.

In the face of these modern views, what weight shall be attached to the opinions on matters of obscure pathology of a writer who not himself a specialist in neurology, nor possessed of any of the recent methods of investigation, nevertheless lays down such positive dicta. Views which were published in 1866, twenty-two years ago, remain, according to his statement in the latest edition, "substantially unchanged" to-day. Within recent years the minute and gross pathology of the spinal cord have been almost entirely re-written. Intelligent discussion of the structural changes which occur in the cord in disease and injury are impossible without reference to the investigations of Charcôt, Brown-Séquard, Gowers and Bramwell. Yet, most of these investigations have been made since the publication of Erichsen's treatise and therefore find no place in his system of pathology. This would not be surprising, were it not also true, that Erichsen holds to substantially the same ideas in his latest writings. What weight should now attach to expert evidence based only upon inference from clinical experience, when diametrically opposite testimony rests on the firm basis of post-mortem and microscopic investigation?

That we may not appear in any particular to misrepresent this writer's opportunities for exact knowledge, we may quote his own words in his latest edition: "No instance (of post-mortem examination) has occurred to me in hospital, or in private practice, in which I could obtain one . . . . The only case indeed on record with which I am acquainted, in which a *post-mortem* examination has been made, in a person who died from the remote effects of concussion of the spine, was published by Dr. Lockhart Clark," etc., etc., etc., in 1886.

What is surprising is not so much that these opportunities were wanting—for it is only of late years and in a few hospitals anything like systematic work has been in this line—but rather that on such a small basis of known fact so large a structure of inferential pathology has been built, and that it should be stated with the positiveness of well-proven facts and should have carried such

weight in the medical world. Even with the same method and from the same observed facts, we find no agreement among those who would dogmatize as the existence of lesions in preference to discovering them in the dead-house and with the microscope. Erichsen has collated a large number of cases from various sources to illustrate certain theories of spinal concussion. Page, on the other, pursuing the same clinical method, has drawn largely from the same sources and even from Erichsen's own published cases to support views of a nature directly opposite. Neither writer has utilized modern methods of study, and we are left with the impression that much of this discussion is but threshing old straw, so far as scientific results are concerned. If the conclusions of these older writers are in any measure weakened by being thus at variance, they certainly are still more discredited when it is found that they are at variance with modern ideas.

Nevertheless, the old, not modern views, still exert a deciding influence in many cases of alleged spinal injury which assume a medico-legal aspect, and many an expert has testified in court substantially to the ideas of a quarter of a century ago, in seeming ignorance of the revolution which cellular pathology has brought about in the last decade.

Erichsen is in accord with later writers in stating that when there have been actual structural changes in the cord, well-marked symptoms are developed. He loses sight, however, of the additional fact, that long continued functional disease produces structural change, when he advances his argument in behalf of "railway spine" and claims it is essentially a functional disorder and therefore not accompanied by the usual symptoms following structural change.

Many months, in the opinion of this writer, may intervene between the time of injury and the beginning of the symptoms of so-called spinal concussion. If, however, the two facts are connected, some functional or structural change must have been going on in the interval. If functional disorder cannot exist except transiently, it follows that the disorder must be, or become structural, or else cease to exist. But we have seen that structural disease produces definite symptoms and not vague and irregular phenomena. What becomes then of the theories of spinal concussion which, upon the assumed and wholly imaginary pathological state, known as "anæmia of the cord," build up a symptomatology equally vague and illusory? In this symptomatology have been included all the mental, psychical and cerebral symptoms which a person who has not met with an accident may suffer, as well as all the minor ills of each and every part of the body which could by any stretch of reasoning be traced to the nerve centers, and all are declared to have their origin in a condition of the cord which modern pathology knows not, or recognizes only as transient.

If it be true that Erichsen's theories of pathology are undermined by the results of more modern investigators, what becomes of the vast superstructure of symptomatology which he has reared thereon? It is essential, if we would be scientific, that we refer only those symptoms to the spine which are known to be spinal. This is now very strongly insisted upon by writers too numerous to quote. No proven facts warrant the belief that mental and psychical disturbances, loss of memory, business inaptitude, depression of spirits and the like, have anything to do with the spinal cord. On the contrary these are truly cerebral symptoms to the best of our present knowledge, and, as such, can be understood and accounted for on plain pathological grounds. Serious they may be, but they are removed from the realm of the mysterious when we recognize their true origin and we can speak rationally of their prognosis and treatment.

But when these cerebral disturbances are referred to that vague state known as "spinal concussion," they seem to take on new terrors, and the patient sees in the diagnosis a dreadful portent of hopeless invalidism or gradual progressive decay. If once he has had Erichsen's picture impressed upon his imagination, he certainly will not lack for material out of which to build a gloomy prognosis. To all intents this writer lays down the opinion that any and every bodily ill may find its explanation in "anæmia of the cord" resulting from "spinal concussion." That this invites not only self-deception, but corrupt practices, we fear there can be no doubt, and such a state of affairs may well be a cause of alarm. Medical men have good reason to fear a condition of things which tends to discredit scientific medicine and the value of expert evidence. Lawyers have good cause to fear a state of affairs which may impose pseudo-scientific doctrine upon the courts in such a way that it cannot be sifted and analysed. Honest claimants are doubly interested in keeping false claims from being allowed to the prejudice of honest ones. Finally, courts themselves have most of all to fear a state of uncertainty in high expert authority, which will invite fraud and defeat the end for which courts of justice exist.

Spinal concussion, when used as Erichsen teaches, is a condition built up almost wholly of subjective symptoms. This renders malingering easy. To illustrate, a man who fears his back has been injured in an accident, consults a lawyer as to the liability of the corporation or individual for the occurrence of the accident. The lawyer —and there is a lawyer to every one hundred men in this city—sends the claimant to a physician —and there is a doctor to every one hundred men in this state—who goes over the ground very carefully with the claimant and asks him if he

suffers from such and such symptoms, and in order that there may be no mistake about it, gives the claimant a written statement of the symptoms usually occurring in well-marked cases of spinal concussion without structural lesion. The claimant, even if he be an honest man, after carefully questioning himself, discovers that he has become the possessor of an inaptitude for business, a mental disquietude, a pain in the back, etc., etc. If he be a dishonest man he studies his chart and has a stock of symptoms on hand when interrogated as to his condition, and in his business, it is "no trouble to show goods." We thus see that the way to imposition is made easy. Avenues of fraud are opened up, and capital, lawyers and courts are practically at the mercy of a clever malingerer. The writers of this paper wish to emphasize the importance of careful and not superficial investigation, and do not believe that the dogmatic precision of an old and inferential pathological which conflicts with modern pathological views, should give answer to the questions arising in alleged injury to the spinal cord.

REMARKS ON MEDICO-LEGAL ASPECTS OF SOME INJURIES OF THE SPINAL CORD.

Read before the Chicago Medico-Legal Society, Oct. 6, 1888.

BY HENRY M. LYMAN, M.D.,
OF CHICAGO.

I have listened with a great deal of interest to the valuable paper of Drs. Burry and Andrews, and I must subscribe most heartily to the propositions advanced in it. It is, as the Doctor has well said, true, that the minds of the profession have for many years been too much under the influence of the dogmas laid down in Erichsen's work on "Railway Injuries." I am thoroughly satisfied that a great deal of injustice has been done and carried out through the agency of the courts upon the basis of opinions that have been formulated in accordance with that book, and I think it is really a very necessary thing to frequently give a word of caution like this to the profession that they avoid falling into the trap which is unwittingly opened before them by such a work. It has been well said that the pathology of the work is old and the inferences drawn from the cases are many of them strained, and yet it must be acknowledged that there is a sufficiency of truth in a good deal that is advanced in it to make the errors that accompany it doubly dangerous. If I were to speak of books in comparison with one another, I should say a book like Page's, while it may be open in many particulars to the charge made against Erichsen's work, of being old fashioned and representing somewhat bygone pathology, of the two it is far the superior work. It is written in a much more judicial spirit and I think much more really and fully represents the advanced views of the profession in these matters than does Erichsen's work.

My own observation in cases of this kind, leads me to feel that a very large proportion of the cases which have been reported and presented in the courts as cases of spinal concussion are really nothing of the kind; they are cases in which, when there is any real lesion, where any real injury has been sustained, it has fallen more largely upon the brain than the cord. Many of the symptoms presented by these patients can be much more accurately described by supposing the brain is the organ that has suffered. It is in cases of this class that so many of the numerous and ill-defined symptoms following an injury, occur; patients who suffer with no systematized lesions, with nothing that can be referred to any disorganization proper of the spinal cord, no true paraplegia or hemiplegia; the lesions are those largely of an irregular distribution where the phenomena are largely mental, and possibly, in many cases, intellectual, and we must refer them chiefly to the brain rather than the spinal cord. It is true of a great many of these cases that the symptoms presented are of this character instead of being symptoms of paralysis either of sensation, motion or nutrition.

We have a large class of cases presenting themselves after these injuries to which the most convenient term we can apply is hysterical; hysterical conditions following injuries. These occur in males as well as in females. We perhaps have more right to expect the existence of hysteria in females who have suffered injury, but many cases of males who have suffered injuries are followed by hysteria, which can only be ascribed to disorders of the cerebrum. In regard to these so-called hysterical symptoms—how far are they to be allowed weight in judging of the liability of a railroad? For example, in the case of an injury that has been sustained, the courts will hold that it matters not what the form of the disorder is, so long as there is a disorder, for the disorder is the consequence of the injury that has been sustained, and the party inflicting the injury is liable for it. There is a certain amount of truth in that proposition; it but must be taken into consideration that disorders of this kind are most intensely liable to exaggeration as a consequence of the peculiar conditions which surround patients who have undergone the experience passed through by the victims of a railroad accident. The injuries are of a nature to disturb the mental functions of the individual, and the anxieties that grow up, partly through the agency of physicians, and partly through the uneasiness attendant upon law suits connected with the railroad company, or parties implicated in the accident, lead to disturbances of the mind to a great extent, and we

should take those things into consideration in our estimation of the probabilities of recovery.

It is a matter of common observation, that when patients have been injured in this way and manifest these mental and intellectual symptoms conjoined with a certain amount of vital innutrition and disorder, when the mental perturbation has been removed there is a great improvement in the symptoms; so that the settlement of a claim against a railroad company is followed by a rapid improvement in the condition of the patient. That is a fact which is often laid hold of by a certain class of physicians and surgeons and used as an argument against the genuineness of the sufferings experienced by the patient. They say it was a matter of imagination, of self-deception, and sometimes go so far as to claim a form of malingering by the patient. But if you reflect upon the relation which exists between the mind and body, it is easy to understand how a person who is in anxiety of mind will suffer, in an aggravated degree, bodily symptoms, and will improve again. It must be kept in mind that many of these patients are really permanently injured, though they have not received any injuries that are enduring from a surgical point of view. There have been no fractures, perhaps; no permanent strains or sprains or dislocations; no wounds anywhere, no depressions of the cranium, or anything of that kind. Many of these cases, therefore, when they have passed out of the immediate care of the surgeon are considered cured, and surgically speaking they are cured; but we must remember a case may be cured surgically and yet not cured medically, and, therefore, a certain class of patients must be recognized as never recovering fully from these injuries; they recover surgically and to a certain degree medically; but, as in a case of inflammation of the spinal cord, when a patient is suffering from myelitis we get a recovery to a certain degree, in the majority of cases, but rarely a complete recovery.

The patients get to walking about with more or less degree of comfort, but never recover the power of locomotion they once had; they have not the power of endurance they once had, and in every respect they are weaker and inferior in their condition to what they were before the injury was sustained. That is something that should be recognized and kept in mind, therefore, that the opinions of physicians and surgeons who are called to examine these cases for injury, should be guarded. I do not know that there are any class of cases in which it is more improper to give a positive prognosis, than in those of severe injury. The probabilities are in favor of partial recovery, that the recovery will be progressive; and yet in every instance the possibility exists that the recovery will be arrested short of complete restoration, and it is impossible, so far as my knowledge extends, to judge in any particular case whether it is going to be a case that is completely curable or whether it will come to a standstill before recovery has been completed. There is a class of cases in which the difficulty is principally mental, and those cases may recover completely, I think; and yet it is not possible for the physician to predict positively in those cases, at an early period, that they are going to be of that curable character. And yet where there is no palpable lesion, no evidence of disorganization of the brain or spinal cord; where the female sex is present, especially in a person of comparative youth, and where there is the possibility of complete change of life and occupation coming in to assist, the prospects of recovery are good.

I remember a case related by Dr. Wood, of Philadelphia, where a young woman had sustained an injury in a railroad accident. She had been examined by numerous physicians who had all given an unfavorable prognosis; not less than ten neurologists assured her she would never recover. That woman came under the care of Dr. Wood and he assured her there was nothing but hysteria the matter, and put her upon a course of treatment; and finally she engaged in a love match which terminated in marriage and she was completely cured. I think there is nothing so good as something to absorb the patient and turn the current of thought entirely from oneself and maladies, into another channel; it is the very best influence toward restoration of health to the mind; and in many of these cases it is a mental disorder that exists. I do not wish to take up the time of the Society, but would call attention to the fact that there is a class of people who are in such a state of mental instability that it needs only an excess or injury of some kind to start them upon a course of mental disorder which will have, we know not what termination. In patients of that class, injured by railroad disaster, followed by unfavorable opinions of men in high standing, and by long litigation, nothing is better calculated to set up a state of ill-health, the termination of which can never be predicted.

PROFESSOR HEINRICH VON BAMBERGER died at Vienna on Nov. 9 after an illness of several weeks' duration. He was born in 1822, near Prague. In 1850 he went to Vienna to work with Oppolzer, but went to Würzburg in 1854 as Professor of Clinical Medicine. Upon the death of Oppolzer he returned to Vienna, and in 1872 was appointed Director of the Medical Clinic in the Allgemeines Krankenhaus. Bamberger was an exceptionally gifted man. As Nothnagel recently said of him: "He thought as a *savant*, and practiced as an artist. Therein lies the secret of his fame as a physician, as diagnostician, and as clinical teacher. . . . . The name of Bamberger, the clinician, links itself brilliantly to those of Skoda and Oppolzer."

MEDICAL PROGRESS.

THE MILK-CURDLING FERMENT OF THE STOMACH.—DR. E. G. JOHNSON has studied the action of the milk-curdling ferment of the stomach in the clinic of Professor Riegel of Giessen, and subsequently in the Sabbatsberg Hospital, Stockholm. Researches were made in 24 cases on the presence of the ferment and the pathological conditions relative to it. Fourteen of these patients suffered from hyperacidity, accompanied in four of them by moderate dilatation of the stomach. In one of these latter there was also hypersecretion of the gastric juice. One case had considerable dilatation of the stomach with hyperacidity and marked hypersecretion. In three cases the dilatation was insignificant, but there was hyperacidity, complicated in one case by slight, and in another by very great, hypersecretion; in the third case the hyperacidity was accompanied by chlorosis. Three other patients suffering from hyperacidity were also the subjects of gastric ulcer. Dr. Johnson also examined four cases of hyperacidity with neither dilatation nor hypersecretion, of whom three were chlorotic; a case of catarrhal jaundice, four cases of severe chronic dyspepsia, and five cases of carcinoma of the stomach. The contents of the stomach were removed while the patient was fasting, and also four or five hours after food had been given for the purpose of the observations. Dr. Johnson sums up his researches as follows: 1. The milk-curdling ferment is a constant product of the glandular secretion of the stomach, and it is met with at all periods of digestion except in cases of cancer of the stomach, in which it is never found. 2. The ferment was also found in the hypersecretions of the gastric juice of a fasting patient after his stomach had been washed out the previous evening. 3. Gastric juice which contains hydrochloric acid, and which when neutralized causes coagulation of milk, does not appear to be affected in its action by the greater or less amount of acid contained in it at first. 4 The milk-curdling ferment does not pass into the urine. 5. The ferment is easily destroyed by an excess of alkali, and it is probably on this account that it does not pass into the fæces under normal conditions. 6. During fever the ferment appears to be absent from the stomach. 7. The ferment causes coagulation more slowly in boiled than in fresh milk. 8. During the coagulation of milk by the ferment the reaction remains neutral, and lactic acid is not met with after coagulation.—*The Lancet*, Nov. 17, 1888.

ALCOHOLISM.—DR. LEWIS D. MASON discusses, in the *Quarterly Journal of Inebriety*, the etiology of dipsomania and heredity of alcoholic inebriety. He has collated a large amount of testimony bearing on this subject; and from this, and from his own experience, which has been very large, he draws the following conclusions: first, alcoholism in parents produces a degenerate nervous system in their children, and subjects them to all forms of neuroses, epilepsy, chorea, paralysis, mental degeneracy, from slight enfeeblement to complete idiocy and insanity; second, alcoholism in parents produces a form of inebriety in their children known as dipsomania, which in the large majority of cases is inherited in the same manner that other diseases are inherited, and we can with propriety and correctness use the term "alcoholic or inebriate diathesis" in the same sense that we use the term "tubercular," or other terms indicating special tendencies to other inheritable diseases.

TREATMENT OF PNEUMONIA BY DIGITALIS.—M. PETRESCO has treated a large number of cases of acute pneumonia with great success by the administration of four grams of digitalis leaves in infusion every half-hour, by mouth. The infusion is prepared with 4 grams of digitalis leaves to 200 grams of water and 40 grams of syrup. The disease is generally checked in three days. The fever and all the physical phenomena, local as well as general, disappear rapidly. In spite of the large doses he has never seen poisonous effects, tolerance having been incontestably proved by 577 observations. By this treatment it is claimed that the mortality of pneumonia has been reduced to 1.22 per cent.—*Lyon Médical*, October, 1888.

TREATMENT OF INFANTILE DIARRHŒA.—ZINNIS recommends for the diarrhœas of childhood, particularly the cases characterized by green evacuations containing undigested casein, the withdrawal of all starchy food, and the following mixture:

Aquæ fœnic	75	parts.
Liquor. calcis	6	"
Bismuth. subnit	3	"
Syr. aurant. flor	15	"

℞.

S. Give a dessert-spoonful every 2 hours.

—*Deutsche Med. Wochenschrift*, Sept. 6, 1888.

USES OF CREOLIN.—LICHTWITZ thus sums up the uses of creolin: It is an antiseptic, a disinfectant, a hæmostatic, and non-poisonous in doses as large as 120 grains. In gram doses in capsules it is useful against tænia solium and oxyuris vermicularis. Its action is excellent in parasitic skin diseases, and in eczema. Given internally it is a valuable antifermentative. It may be used by inhalation in laryngeal and tracheal troubles, and the powder may be applied locally. Creolin powder has a good effect in some cases of keratitis.—*Nouveaux Remèdes*, October, 1888.

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SATURDAY, DECEMBER 15, 1888.

THE AMERICAN ACADEMY OF MEDICINE, AND MEDICAL EDUCATION.

In reading the abstract of the proceedings and papers presented at the recent annual meeting of the Academy, in THE JOURNAL of the 8th inst., we noticed some statements calculated to convey impressions not in strict accordance with the facts of history. It is natural and commendable for members of any legitimate society to magnify the importance and influence of the society to which they belong, provided they do not detract from the labors of others or use such expressions as lead to erroneous inferences. The abstract to which we have alluded represents the writer of "A Few Words Concerning the Academy" as making the following statement: "The Academy was organized in 1876, at a time when the standard of medical education was at its *lowest point*. Medical institutions were numerous and their doors thrown open to all, irrespective of qualifications. . . . It was at this period that the Academy began to explore these novel methods of manufacturing medical practitioners."

If the writer of these statements will turn to the "Reports on a Uniform Standard of Medical College Requirements, and on Medical Education," contained in the first volume of the Transactions of the American Medical Association, 1847–8, he will find that the standard of medical college education at that time, demanded no preliminary education, and attendance on only two courses of college instruction averaging sixteen weeks each, the minimum being thirteen and the maximum eighteen weeks. Less than half of the colleges required attendance on any clinical instruction, and only one-third made dissections obligatory upon the student. This being the standard of medical education in 1846, if it continued to deteriorate during the succeeding thirty years and reached its "*lowest point*" in 1876, it must have required a microscope to find where it was at that date, when the Academy came into existence. But what are the facts? At almost every succeeding annual meeting of the American Medical Association an able report on the subject of medical education was made and discussed until 1866, when it culminated in the recommendation that a convention of delegates from the medical colleges alone be held for the purpose of maturing and adopting a uniform plan and standard of medical education. The convention was held in Cincinnati, May, 1867, and was presided over by the eminent Alfred Stillé, Professor of Practice of Medicine in the University of Pennsylvania. During three days of earnest and harmonious deliberation, a full graded three years' course of medical college instruction, including a fair standard of preliminary education before commencing medical study, practical anatomy, and hospital clinical instruction was adopted, and laid before the faculties of all the colleges in this country. A second convention was held in May, 1870, the whole subject again discussed and the same liberal graded plan was re-adopted, and the same received the unanimous sanction of the American Medical Association. In the meantime the Chicago Medical College had been established in 1859, seventeen years before the organization of the American Academy of Medicine, with a three year graded system and six months college term, and in 1871, five years before, the Medical School of Harvard University adopted the same, to be soon followed by the Medical Department of the Syracuse University, and the old University of Pennsylvania. The colleges generally had increased the length of their college terms and the number of their professorships. Indeed, it was the steady progressive development of professional opinion by the reports and discussions in the American Medical Association, the college conventions alluded to, and the State Medical Societies, during the thirty years following 1846,

that made it possible to organize and maintain the American Academy of Medicine in 1876, and the Illinois and many other State Boards of Health since.

THE MEDICAL COLLEGE OF VIRGINIA.

In another department of this week's issue of THE JOURNAL will be found a letter on this subject from DR. J. S. DORSEY CULLEN, Dean of the Faculty of the Medical College of Virginia. The first paragraph of the letter is of such nature that we would be fully justified in refusing to publish it. The English language is broad and flexible enough to permit one to be severe and critical without being offensive, or violating its rules of orthography and syntax.

As every one must know, individuality is dropped in editorial writing. It is a well-settled principle that the editor of a journal is responsible for unsigned articles. While the editor may not write all that appears in his editorial pages, whatever appears therein has his full consent. An editor cannot allow personal prejudices to direct or influence articles for which he is responsible. Dr. Cullen's position of claiming to respect THE JOURNAL, but at the same time caring nothing for an opinion expressed in its editorial columns, and opening his letter with an offensive paragraph, is, therefore, as paradoxical as his first sentence is ungrammatical.

Whether or not the statements made in THE JOURNAL concerning the Medical College of Virginia are "flagrantly at variance with the truth," we leave our readers to judge from the facts already and to be presented. Dr. Cullen states three charges made against the College *by its enemies*. THE JOURNAL is not an enemy of this College, and does not feel itself called upon to take part in a personal controversy between the College and its enemies. It does feel called upon to expose any medical college that graduates incompetent men; it has that right, and will do so whenever it has the facts to go upon.

Dr. Cullen seems to have misunderstood the charges made by THE JOURNAL against his College. Briefly they were as follows: 1. That it has, with some other medical colleges, done bad work by graduating incompetent men. 2. That it was, at least from January, 1888, to the time the editorial articles appeared in THE JOURNAL, opposed to the Medical Examining Board of Virginia. 3. That in January, 1888, the bad work of the College was practically admitted by the fact that the students of the College, supported unofficially by members of the Faculty, went before a committee of the Virginia Legislature and asked that the students of the Medical College of Virginia be exempt from the State Examinations. We did not say that the Faculty of the College was opposed to the *establishment* of a State Medical Examining Board; we knew the contrary, as shown in THE JOURNAL of Sept. 8, p. 346. In the same issue we stated the so-called reasons given by the students of the College to the Legislature why their graduates of the College should be exempt from State examinations. Some members of the Faculty must certainly have seen the preposterous document of the students; and that the students were allowed to stultify themselves by it without protest from the Faculty is at least presumptive evidence that the Faculty considered it a proper article to emanate from their College. The members of the Faculty should have considered it a duty to say to the Legislative Committee that they could not approve of the memorial presented by the students.

The facts already presented in THE JOURNAL, including the table in Dr. Cullen's letter, already published in our issue of Nov. 24, p. 746, are proof enough that the Medical College of Virginia has not done good work since January, 1885. The table shows that some other colleges have done worse work; but it is no excuse for grand larceny that some one has committed murder. Dr. Cullen is quite right in saying that the Medical College of Virgina "had the smallest number of graduates rejected of any college whose number of applicants were (was?) equal to it (?)," seeing that no other college had an equal number of applicants by 23. Dr. Cullen finds that about 7 per cent. of the graduates from the Medical College of Virginia have been rejected by the Virginia Board. We believe that 8 is not "about 7 per cent." of 57, but 14.03 per cent. We did not find it necessary to establish the bad work of this College by comparing its work with that of other colleges; 14.03 per cent. of rejected applicants before the State Board is quite enough evidence of bad work.

If Dr. Cullen wishes to know why more was said of the Medical College of Virginia, in our

editorial articles, than of other colleges doing as bad or worse work, we may say that it was because the Faculty officially endorsed the establishment of the State Board of Examiners, and afterwards individually opposed the Board before the Legislature; because of the action of the students of that College in petitioning the Legislature of Virginia to exempt its graduates from the State examinations, and their reasons therefor; because the Faculty did not protest against this petition, and because of the statements made to the Legislative Committee by members of the College Faculty. The action of the students was substantially, though unofficially, it is said, endorsed by the members of the Faculty (except Drs. John N. Upshur and Geo. Ben. Johnston). If Dr. Cullen does not remember what the members of the Faculty said before the Legislative Committee, we can refresh his memory by publishing their statements. In regard to the misstatements refuted by Dr. Cullen at Norfolk, we can only say that none have been made in THE JOURNAL; and as to the statements that we have made, they have been refuted neither at the Norfolk meeting nor in the letter from Dr. Cullen in this issue.

We noted with pleasure the position taken by Dr. Cullen at the Norfolk meeting of the Medical Society of Virginia in regard to the State Examining Board. Inasmuch as he represents the Faculty of his College, until there is evidence to the contrary we shall accept his action as a promise that the Medical College of Virginia has entered upon an era of better work.

THE DIETETIC USE OF SACCHARIN.

In a recent number of the *Lancet* DRS. THOMAS STEVENSON and L. C. WOOLDRIDGE record some experiments made to determine whether saccharin is poisonous or not when given in excessive quantities; and if it is not poisonous under these or other conditions, whether its use in moderation interferes with the digestive processes, so as to render it advisable to forbid its use as a substitute for sugar. Saccharin is not a food in any sense; but it is recognized that there are many circumstances under which it is necessary to have a sweetening agent to take the place of sugar. As to the non-toxic nature of saccharin the experimenters have no doubt, since their experiments confirm those of reliable investigators on the Continent. Saccharin has decided antiseptic properties, and in sufficient quantities is capable of stopping the action of organized ferments. As regards its extracorporeal action on the soluble ferments, as regards the peptic digestion of fibrin 0.1 per cent. of saccharin has no retarding influence, while 0.25 per cent. slows the process decidedly, and 1 per cent. greatly retards it: 0.1 per cent. of saccharin is equivalent to 30 per cent. of sugar, which may be said to be a dietetic impossibility. The diastasic solution of starch is not hindered by 2 per cent. of saccharin. The addition of saccharin to urine hinders ammoniacal fermentation—as does ingestion of saccharin.

As regards the intracorporeal action of saccharin, it was found that a gram of the substance, equal to more than eight ounces of sugar, did not interfere in the least with the gastric digestion of the dog. The article used in the experiments was "soluble saccharin," equal to about nine-tenths its weight of pure saccharin. It is as soluble in water as table salt, and when properly diluted is scarcely to be distinguished from cane sugar. Drs. Stevenson and Wooldridge conclude that (1) saccharin is quite innocuous when taken in quantities largely exceeding what would be taken in an ordinary dietary; (2) it does not interfere with nor impede the digestive processes when taken in any practicable quantity; (3) it may be taken during an extended period without interfering with the digestive and other bodily functions. There is, then, no reason to think that its continual use may be in any way harmful.

EDITORIAL NOTES.

AN ARMY MEDICAL BOARD will be in session in New York City, N. Y., from May 1 to 31, 1889, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies. Persons desiring to present themselves for examination by the Board will make application for the necessary invitation to the Secretary of War, before April 1, 1889, stating the place of birth, place and State of permanent residence, and enclosing certificates based on personal knowledge from at least two persons of repute, as to American citizenship, character and moral habits. Testimonials as to professional standing, from Professors of the Medical College from which the

applicant graduated, and of service in hospital from the authorities thereof, are also desirable. The candidate must be between 21 and 28 years of age, and a graduate from a *Regular Medical College*, evidence of which, his Diploma, must be submitted to the board. Further information regarding the examinations and their nature may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

ISOLATING "LUMP-JAW" CATTLE.—The Secretary of the State Board of Live Stock Commissioners reports that the Agent of the Board at the Union Stock Yards, Chicago, has, since the 15th of October, when he was placed there, isolated 148 cattle diseased with lump-jaw, and all but one of these have been slaughtered by the owners without cost to the State, thus preventing their going into the country to again spread disease. The action of the Yard Company in ordering the carcasses tanked has prevented the placing upon the market of diseased meat, which is likely to convey the disease to human beings. The Stock Yard officials and the commission men generally are co-operating heartily with the State Board in preventing the spread of the disease by absolutely refusing to handle any animal affected with the disease. The Board of Live Stock Commissioners has placed an agent at the National Stock Yards at St. Louis to inspect and isolate diseased cattle.

A NEW URINAL has been invented by a German firm. The long bag, which hitherto was hanging in an uncomfortable manner the whole length of the leg, is done away with, and its place taken by a bag attached to the waist and extending horizontally, the urine being kept at the bottom of the bag and spreading over its entire width, instead of accumulating at one point. Moreover, a pump and sucking apparatus is connected with the urinal for the purpose of making the reservoir air-tight and allowing the urine to flow very quickly by means of a valve into the lower part. The discharge is effected in a comfortable, very clean, noiseless and non-conspicuous manner, the emptying hose being mechanically opened, when the fluid runs away to the last drop.

ABNORMALITY OF THE AORTIC ARCH.—At the meeting of the Anatomical Society of Great Britain and Ireland on Nov. 7th, Mr. Gordon Brodie related a case of abnormality of the aortic arch, in which the innominate arteries (?) were absent, being replaced by a short, thick trunk, which gave off two branches ascending on either side of the trachea to the place of the common carotids, that on the right giving off one corresponding to the vertebrals. Next in order from the arch was the left vertebral, which entered the foramen in the transverse process of the fifth cervical, and gave a branch to the thyroid. Another branch arose from the first part of the subclavian on the left side. The right subclavian arose as a fourth branch from the arch, and passed behind the œsophagus and trachea.

THE PROFESSION IN NEW MEXICO.—The Territorial Board of Medical Examiners of New Mexico made its report to the Governor on Nov. 29. There are 1,291 persons practicing medicine in the Territory. Of these 834 are regulars, 151 homœopathic, 44 eclectic, and 264 non-graduates entitled to certificates owing to length of practice in the Territory. The Board revoked two licenses during the year, one for unprofessional and immoral conduct, and the other for passing a forged diploma and obtaining a license to practice. Eight have been obliged to leave the Territory to avoid prosecution under the act.

FALSE CERTIFICATE OF DEATH.—A physician in St. Paul, Minn., recently gave a certificate of death to the city health deparment, in which "sore throat" was given as the cause of death. The Health Officer, Dr. Kilvington, refused to accept it, and the physician then substituted "scarlet fever" for sore throat. The case should receive, and doubtless will have, full investigation. This kind of evasion of the law is both criminal and contemptible, and richly deserves punishment. Other cases of failure to report contagious and infectious diseases, are reported from St. Paul and Minneapolis.

INTUBATION OF THE LARYNX.—Dr. F. E. Waxham reports fifteen cases of intubation recently coming under his care, with ten recoveries, or 66 per cent. Out of a total of 173 cases there have been fifty-three recoveries, or 30 per cent., and of his last fifty cases there have been twenty-two recoveries, or 44 per cent.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION met in Birmingham on December 4, with a large number in attendance.

SPECIAL ARTICLES.

HISTORY OF THE SEAL OF THE NINTH INTERNATIONAL MEDICAL CONGRESS AND OF THE COMMEMORATIVE MEDAL OF THE CONGRESS.

As it may, at some time, be of interest to know the origin and history of the seal of the International Medical Congress of 1887, and also of the medal struck to commemorate the Congress, it is essential to collect the data now, and put the facts on record. This can be done most accurately by publishing the letter of Dr. J. M. Toner, written at the time to Prof. Henry H. Smith upon the subject. This letter, with the addendum, is supplied at our request, and furnishes a complete history of the matter. To make the history more complete, we append correct cuts of the two sides of the medal.

WASHINGTON, D. C., April 20, 1886.

PROF. HENRY H. SMITH, M.D.,

Chairman Executive Committee of the Ninth International Medical Congress:

Dear Doctor:—Your letter requesting me to prepare a design for a suitable seal to be used on the official papers and publications of the Ninth International Medical Congress which is to meet at Washington, D. C., September 5, 1887, has been received. In addition to the seal, I fully agree with you in the sentiment that the occasion of the assemblage of representative medical men from all the civilized nations of the earth, gathered at the Capital of the United States, will be so notable an event as to deserve to be commemorated by a suitable medal. Since the receipt of your letter I have given such thought to the subject as I could, and have now the honor to submit for your consideration the enclosed drawings as a design for one side of a medal, and I propose that the same figures be engraved and used as the seal to be attached to official documents by the officers of the Congress. For the reverse of the medal I suggest that a figure of the head of Washington be adopted. A most excellent specimen of portraiture in medallic art is that of the head of this, the greatest man the world has produced, modeled from the Houdon plaster cast which was taken of him during life and engraved at the United States Mint in Philadelphia. This die or model can, I have no doubt, be obtained for your purpose. Washington's bust will properly symbolize the New World and our progress in civil government, as well as the arts and sciences in our country.

If, however, the bust of Washington does not seem to your committee as appropriate, then I propose that the symbolic figure of Europe and America, a rough sketch of which I enclose, be substituted. The group of figures on the medal is intended to symbolize medicine. Æsculapius, the inventor of the art, is here represented as of noble and venerable form, draped in classic costume, seated, holding his staff entwined by a serpent, and attentively examining a sick child, which a mother seated on a low stool holds upon her lap. Two men are represented as standing soliciting the services of the physician, one with a staff and a bandaged head, the other supporting himself upon a crutch. The only accessory to the figures evoked by the artist is the Roman altar which is placed partly behind the chair of Æsculapius, and around which twines a serpent in the act of depositing a medicinal plant in a cup upon the altar. To typify medicine the classic figure of Æsculapius, which tradition and the arts have brought down to our time, has been accepted. The serpent and the other emblems which usually accompany his portrait are of classic origin and will be readily understood by the student of medicine, so that it is scarcely necessary to describe them, and yet a brief reference to their meaning as given by the ancients may be pardonable. It is known to scholars that Æsculapius, the god of medicine, was claimed to have been of divine origin—the offspring of Apollo and Coronis. The mother, concealing her pregnancy, withdrew to the forest in the neighborhood of Epidauris, and there brought forth a son and left him exposed on the mountain. The child was preserved by a stray goat, which nourished him with its milk, while the goat-herd's dog guarded him from injury. A shepherd watching his flock discovered the child, but was alarmed at seeing the infant surrounded by a resplendent halo of light, and fled, proclaiming that he had found a divine being. The infant was taken by Trigona, the wife of the goat-herd, and carefully reared until he reached an age to profit by the teachings of the famous Centaur, Chiron, under whose instruction Æsculapius attained wonderful proficiency as a physician. His great knowledge of the healing virtues of plants and other substances, and his skill in curing diseases and in the treatment of wounds, at length elevated him in the esteem of the age to the dignity of the inventor and god of medicine. The worship of Æsculapius was first established at Epidauris, and afterwards spread to and throughout Greece. In the beginning he was adored under the form of a serpent, though subsequently many statues were erected in the human form to his honor. The serpent is the symbol of renovation and eternity everywhere in classic sculpture, and graphic representations accompany the god of medicine. It is also the accepted symbol of health and life, and in one or another position is represented in all the statues of the god, and usually twining around his staff. One of the traditions as to the origin of this association of the serpent with the god of medicine is the following: While Æsculapius

was in the house of Glaucus, whom he was engaged to cure, and while standing with his staff in his hand absorbed in thought, a serpent came and twined around it, which he killed. Shortly after another serpent came, carrying in its mouth an herb, by the touch of which it recalled to life the one that had been killed. Æsculapius, observing the restoration of the dead serpent to life, took the same plant and used it with like effect in restoring health and life to men. This power, however, offended Pluto, because it diminished the number of the dead. Zeus therefore killed Æsculapius with a flash of lightning but, at the request of Apollo, he was placed among the stars.

Æsculapius is frequently represented standing, but a few classical groups exist which show him seated; one on a throne with his daughter Hygeia, the goddess of health, feeding a serpent, and Telesphorres, one of the minor gods who presided

over convalescence, dressed in a monk's cloak and hood, standing by her. As accessories, artists have availed themselves of the figures of the goat and the dog which nourished and protected the infant god, and also of the cock which was frequently sacrificed to Æsculapius. But none of these have been introduced here. The head of Æsculapius, as represented in the best antique statues, much resembles that of Apollo, the features regular and of benevolent expression, the hair trained to ascend from a massive brow, parting in the middle and then falling down over the temples in a profusion of curls like the mane of a lion, and wearing a full though short and curling beard. The effect obtained by the artist in this group is pleasing. The pose and figure of Æsculapius is good, and his seated attitude gives him the air of earnest benevolence in the exercise of his humane office. The infant as presented by its mother enlists at once the sympathy of the beholder. The two men of good figure present evidences of requiring the skill of the physician, and add to the effectiveness of the group. The Roman altar with the serpent depositing a medicinal plant in the cup is classical in its origin and assists to complete the symbol of the origin of medicine.

Should your committee deem it wise to arrange for a medal I trust you will have it executed in the best style known to the art, and that it be left optional with the members to subscribe for it or not as they may elect. The taking of the medal of the Congress of 1881 in London was entirely voluntary. Its cost was five dollars. The one proposed for the Ninth Congress will cost the same; this amount to be paid at the time of registering. The medal to be delivered to subscribers as soon as it can be made.

The London medal had on one side the same symbolical figure which appears on the seal of that Congress, and on the reverse side the bust of the Queen.

I would further suggest that you would submit the drawing for the medal to Mr. Barber, designer and engraver in the United States Mint in Philadelphia, and make inquiry of him as to size, cost, and the use of the model of the head of General Washington which I have referred to. He could give your committee at once an approximate estimate of cost, and thus enable you to come to a speedy conclusion of the matter.

Hoping to have the pleasure of greeting you and many old friends at the meeting of the American Medical Association in St. Louis in May, all full of wisdom and fortitude to work to the end of making the Ninth International Medical Congress a grand success, I remain, Yours very truly

J. M. TONER.

ADDENDUM, SUPPLIED BY REQUEST.

The design for the medal submitted as described in the foregoing letter was adopted by the Executive Committee as the seal of the Congress, yet they did not feel warranted in assuming the financial risk involved, and left the whole project of the medal to the registrar. The propriety of having a suitable medal engraved to commemorate the occasion seemed to be beyond question, and to justify the placing of a special notice regarding a commemorative medal at the bottom of the registration blank used by applicants for membership. This form to be filled up or not as members might choose to become subscribers. This view of obtaining the sense of the members of the Congress on the matter was approved by the Secretary-General, Dr. J. B. Hamilton, and that course adopted. The notice promised that a medal equal to that of the Congress at London would be ordered if a sufficient number were subscribed for at five dollars apiece to cover the expense, but if the medal was not ordered the money would be returned to the subscribers. A sufficient sum was raised to engage the services of Charles E. Barber, an eminent engraver and medallist employed in the United States Mint at Philadelphia, to re-draw the group of figures submitted and to place the following inscriptions in raised letters upon the face of the medal. The figures have been fully described in the letter to Dr. Smith. The inscription in a straight line beneath the group symbolizing medicine is, "*Washington, 1887;*" above and encircling the group, reading from left to right, "*International Medical Congress;*" beneath and completing the circle, reading from left to right, "*N. S. Davis, Pres. J. B. Hamilton, Sec.-Gen. E. S. F. Arnold, Treas. J. M. Toner, Reg.*" The reverse side of the medal contains a noble bust of Washington, and in a circular line above the head the inscription, "*United States of America;*" beneath in a circular line, "*Founder of the Republic.*" The artist has been eminently successful in producing a beautiful specimen of medallic art, which we hope in a degree appropriately commemorates the Ninth International Medical Congress, and will at the same time be an acceptable souvenir of the occasion.

J. M. T.

CASES OF SUDDEN DEATH IN NURSING INFANTS.[1]

BY PROF. PAUL GRAWITZ,
OF GREIFSWALD.

[Translated[2] for the author by S. N. NELSON, M.D.]

The object of this communication is to call attention to a group of cases of death in nursing infants, which are of interest, because healthy children died with the symptoms of suffocation without any preliminary evidences of disease. I have observed two such cases which throw some light concerning the cause of death. According to my idea, a greatly enlarged thymus gland is the real explanation of the sudden asphyxia in both cases.

The first case occurred about four years ago in Berlin. A child about 8 months of age was entrusted to the care of a servant girl. One morning this child, which hitherto had been entirely healthy, was found dead in bed. The feather coverlid, with which the little one was covered, seemed to be drawn somewhat high up over the mouth of the child. On account of these circumstances the attending servant girl was accused by the parents, and criminal proceedings were commenced against her for her carelessness. In consequence of this a judicial autopsy on the body was ordered, which I had the opportunity of conducting in conjunction with Professor Liman.

The little body was well developed and well nourished, and no traces of external injury could be found anywhere. Within the skull there was nothing abnormal. On opening the pleural cavity there presented a thymus gland of unusually large size, which covered over the greater part of the pericardium like a flat tumor, and which extended on both sides somewhat high up in the neck toward the thyroid gland. The gland had a lobulated structure and its surface was of a bright red color, studded everywhere with little punctiform hæmorrhages. On section similar little petechiæ could also be recognized in the interlobular tissue. In the pericardium, and also occasionally in the pleura, there were likewise found little extravasations. The heart was of normal appearance, the lungs were crepitant and entirely normal, and there were no foreign contents in the large or small bronchi. There were no changes worth mentioning in the organs of the abdominal cavity.

The preliminary opinions of both operators were that the child had died of suffocation. The proximate circumstances under which death followed we left undecided.

In the oral proceedings which followed it was established that the coverlet had not encumbered the face of the child to any unusual degree, and then it became necessary for both of us experts to explain more clearly the cause of the suffocation. In this respect our opinions differed; for while Professor Liman attached no special importance to the relations of the thymus gland, I believed that this was the cause, although I had had no special experience in similar cases. Therefore I gave this to be my opinion before the judges, and insisted that I was obliged to attach much importance to the very abnormal size of the gland, since its anatomical position[3] must have produced ex-

[1] A discourse delivered before the Stralsund Medical Society.
[2] Deutchen Med. Woch., 1888, No. 22.

[3] In the skeleton of a child 8 months old, I find the distance

cessive pressure on the larger bronchi and the vessels lying behind it, and on this account it was not necessary to ascribe the death of the child to a crime.

The judges acquitted the accused servant; but they expressly declared that the judgment was given from lack of positive proof independent of the opinions of the experts.

Since that time until the present I have never met a case in which I could ascribe the death of the child to the thymus gland, although I have always had it in mind. I have just met a second case which in clearness exceeds the first in many respects.

The daughter of Mr. J., in Greifswald, was a strong, well-nourished and lively child, 6 months old, who had never suffered from cough or any other illness. On the 20th of April of this year the parents of this little child were rejoicing. The father held it in his arms and was playing with it in the presence of some relatives. Suddenly the child was seized with difficulty of breathing, the face became livid, the fists clenched, and in a few minutes the child was dead. One of those present, an experienced nurse, immediately attempted to restore the child by artificial respiration, but it was in vain. The death certificate was made dependent upon the result of the autopsy, which I performed on the 21st of April.

Report of the Autopsy: The body of the child showed externally no traces at all of any injury. The skin of the face, on the body, abdomen and arms is white; on the back and legs livid. The subcutaneous fat is extremely thick. On the thorax can be felt a plain rosary of rickets. The thorax is broad, the abdomen somewhat swollen. The muscles are in rigor mortis.

On opening the abdominal cavity the small intestines filled with gas press forward, the serous covering is grayish white, delicate, and in several places the light rose colored Peyer's patches show through. In the abdominal cavity there are no foreign contents. The diaphragm on both sides in the mammillary line is at the lower border of the fourth rib. *Under the sternum lies a thymus gland of unusual size.* It covers the greater part of the pericardium with two lobes held together in the median line by connective tissue. It forms a thick cap over the heart with the concavity inwards.

Upwards the left lobe becomes gradually narrowed, but the right one, interrupted by a constriction, proceeds as a long process, which ends tapering. The greatest length from this process to the base of the thymus is 7.5 cm., and the greatest breadth over the pericardium 6 cm., the thickness (about 1.5 cm.) is difficult to determine, since at the level of the division of the bronchi, a somewhat thick accessory lobe projects from the left lobe and is separated from the chief lobe by a constriction; but it partially overlaps it and thus adds to the thickness. *Diameter from before backwards on a level just below the manubrium, is less than 1.8 cm.; the color is gray-rose, sprinkled with numerous superficial petechiæ of fresh red color; the consistency is somewhat hard;* the heart is relatively large and strong. In the visceral pericardium are numerous red extravasations of the size of the head of a pin. The muscles of the heart, the valves, and the foramen ovale are normal. In the cavity is considerable fluid blood, as also in the vena cava and in the veins of the neck.

The organs in the neck are removed in connection with the lungs. The mouth and pharynx are empty and so is the opening of the larynx, the trachea and the large bronchi. The epiglottis shows an exquisite lateral compression (asphyxiated position of Virchow). Its mucous membrane, like that of the pharynx, is congested. The interior of the larynx and the upper part of the trachea are of a considerably brighter red color, and a more marked injection commences just over the bifurcation, which corresponds to the narrowest spot between the sternum and the vertebral column. In the large and small bronchi there is some clear reddish froth, the lungs are considerably collapsed, everywhere containing air, bright red, and here and there on the surface are little blebs of interstitial emphysema. The œsophagus is empty. In the stomach are some milky contents and a considerable accumulation of gas. The mucous membrane is of a pale grayish white. In the intestines likewise, is thin chyme and gas, and the mucous membrane is of a delicate clear gray color with somewhat marked rose-colored, but not swollen, Peyer's patches. The spleen is large and full of blood with very prominent little follicles. The liver is full of blood but otherwise quite normal as are also the kidneys. The mesenteric glands are somewhat enlarged, grayish red, and the chyle vessels are filled with white contents.

Diagnosis.—Death from suffocation on account of hyperplasia of the thymus gland.

Conclusions.—Both of the above-mentioned cases have in common that there was no real illness like an asthma or any similar disease, but that the nurslings had died absolutely healthy. *In both of them the autopsy had given as the cause of death the report usually reached in a case of death from suffocation, and in both only the enlarged thymus was anatomically found as an explanation for the suffocation.* The minute hæmorrhages which were present in large nunbers in both thymus glands exist in cases of suffocation and correspond to punctiform hæmorrhages in the pericardium and in the pleura.

Since, however, in the first case the suspicion cannot be absolutely removed that the servant had

from the manubrium of the sternum to the vertebral column to be 2 centimetres; therefore this is the dangerous point at which an enlargement of the thymus of 1 or 1.5 centimetres in thickness must essentially narrow the space.

covered the child too much, and thus had aided in causing death, yet in the second case the child was awake when the difficulty in breathing occurred, the parents and several persons were present, and every unnatural influence was thoroughly excluded. So far the facts go.

If it is now asked, whether nothing definite is known about cases of death of this sort, it must be assumed that the judicial physicians in general attach no importance to hyperplasia of the thymus, since nothing is found about it, at least in the mortality statistics of the well-known text-books of Liman and von Hofmann. On the other hand, quite a lively debate is carried on concerning the importance of the thymus in the 40th or 50th years. In Alexander Friedleben's book, "The Physiology of the Thymus Gland in Health and Disease, etc., 1858," is found a very fertile research into the literature of old authors and in a supplement, page 248, is "a case of sudden death in the first act of laryngismus," with which both of my cases correspond in a striking manner. Nevertheless it is evidently this very work which is chiefly to blame for the later neglect of these cases, since Friedleben, after a long criticism, came to the conclusion that we have overestimated its importance even in such cases of sudden death. Evidently, then, the frequency of really enlarged thymus glands was overestimated and a special disease was established, called asthma thymicum, which should always have such a hyperplasia as a foundation. Now it naturally happened that cases of difficult breathing in children were infinitely more frequently observed than enlarged thymus glands were found at the autopsies, so that all sorts of diseases of the lungs and air passages were classified under the great head of asthma thymicum.

On the other hand cases came under observation in which, as in both of those mentioned above, no sort of symptoms of disease existed and in which, nevertheless, a thymus gland was found, which occasionally was still greater than those belonging to nurslings that had died of asthma thymicum. What was more natural than that Friedleben came to the conclusion that these relations of size were to be considered normal, since the glands had caused no difficulty previous to the first fatal attack, and that he finally denied not only the asthma thymicum, but also the possibility of a dangerous hyperplasia of the gland.

I am not exactly in the condition now, with only my two cases, to contradict the authority of Friedelben, which is given on an astonishing number of individual experiences, but I believe that I can draw two conclusions which render doubtful the value of his negative standpoint. In the first place, Friedleben deals just as radically with tumors of the thymus as with hyperplasia of the thymus. The opinion of the older authors concerning cancer of the thymus, of which Astley Cooper had one case, Friedleben treats with unmistakable contempt, although today an experienced pathologist could hardly be in doubt that these tumors, observed in people perhaps 19 years old, which are situated in the anterior mediastinum which lie over the pericardium, which take possession of the site of the thymus, and in some measure look similar to it in structure, belong to the class of Virchow's lympho-sarcoma thymicum. The reproach that the opinions of the older authors were somewhat lacking in exactness, can surely be acknowledged, but Friedleben's interpretations of these are all the more incorrect; because, although to-day those tumors are no longer called carcinomata, yet the occurrence of malignant lympho-sarcoma is one of the best known facts that we know about the pathology of the thymus, and a denial of malignant tumors of the thymus must put in question the infallibility of Friedleben's criticism.

My second point is an observation which I find in the second volume of Virchow's "Tumors," 1866. In the chapter on hyperplasia of the lymph glands, Virchow speaks as follows, concerning asthma thymicum:

"This asthma has lately been much doubted, and it has been struck out from the class of disease. With Hasse[1] I consider it possible, yet it is difficult to decide the question surely, since generally other symptoms of disease are present at the same time, which sufficiently declare the danger of the disease, viz.: spasmodic catarrh. Nevertheless, a considerable hyperplasia has its influence on the respiration and circulation; but there have been only a few cases in which I have really seen considerable hyperplasia. Yet I have seen them. In my collection I have one preparation where the child died of asthma and where the thymus was so markedly enlarged that I could not understand how the possibility could be denied that the dyspnœa arose from its pressure. The gland weighed 6.5 drachms. It was $3\frac{3}{8}$ inches long, $\frac{3}{8}$ inch thick, and $2\frac{1}{2}$ inches in its greatest breadth, with an average of $1\frac{1}{4}$ inch. In a recent case I notice that the thymus measured 6 cm. in its greatest breadth, 1.5 cm. in thickness and 7.5 cm. in its greatest length, with an average of 6.5 cm."

Thus it is seen that the measurements which Virchow has considered as sufficient for an explanation of death by suffocation, almost completely correspond with those of my second case; and furthermore, that these cases must be very rare when only two such preparations are found in the very abundant material in the Berlin Institute.

Just so little can I give satisfactory reasons why a condition which evidently is of long duration can

[1] The book of K. Ew. Hasse: Spec. Pathol. Anatomie, published in 1841, relies concerning the thymus on Becker, Hangstedt, Kopf and others, and in hyperplasia of the thymus considers of importance only in special cases the compression on the trachea; but rather on the vena cava and the right auricle.

produce so sudden death. I can only be guided by my experience, that very often have I found a satisfactory explanation of the cause of sudden death at the autopsy of young children, but every explanation is at fault concerning the question that the child was so very well immediately before the occurrence of death and then so unexpectedly and so suddenly died.

At any rate, the judicial physician's side of the question appears to me important enough to mention it here, It is proven that healthy nurslings can die a sudden death by suffocation without attaching blame to any one, or without thinking of suffocation by the mother or others; and perhaps this communication affords the opportunity of supplying a deficiency in pathological anatomy by further observations in judicial autopsies.

SOCETY PROCEEDINGS.

Chicago Medico-Legal Society.

Stated Meeting, October 6, 1888.

THE PRESIDENT, E. J. DOERING, M.D., IN THE CHAIR.

DR. E. WYLLYS ANDREWS and DR. JAMES BURRY read a paper on

MEDICO-LEGAL ASPECTS OF SOME INJURIES OF THE SPINAL CORD.

(See page 841.)

DR. HENRY L. LYMAN made some remarks on the same subject. (See page 844.)

DR. EDMUND ANDREWS: I have been so much perplexed by this class of cases that I would a good deal rather ask questions than attempt to enlighten anybody. I was induced to come here to-night, partly, because I am threatened to be called as a witness in a railroad suit. I have not examined the patient, but it is said to be an injury of the spine, and it struck me that this discussion would enlighten me.

DR. L. L. MCARTHUR: There are some facts that will bear reiteration and emphasis in this connection; and to begin the subject one might follow Ashurst, who says it is mortifying to confess that the physicians and surgeons of the present day know less in regard to concussions of the spine than their predecessors did. But he enlightens us a little further by stating that we know perhaps a little more what it is not. The improvements which have been made in the line of nervous diseases, and the advance in the pathology of the spinal cord, have enabled the neurologists to clear up many of the nervous diseases which were classed under the head of spinal concussion. Spinal concussion can be limited to concussion of the brain, and yet, in concussion of the brain we always expect the symptoms to manifest themselves at or very soon after the injury. But in this class of cases which come under the head of spinal concussion—identically similar in their nature, that is, believed to be without any actual structural lesion of the spinal cord, they are claimed to occur weeks or months afterward. Hence, I feel inclined to ask the gentleman who closes the discussion if we have any symptoms which we may rely on as confirming, or being diagnostic of, spinal concussion? If they can in any way enlighten us as to our diagnosis for other troubles of the spinal cord, or if the neurologist has some means at arriving at a conclusion, some characteristic symptoms like vertigo, the peculiar gait of locomotor ataxia, where the gray matter of the cord is affected. There seems to be nothing definite conveyed by the term spinal concussion. Some other name has been suggested, rather than this term which covers up ignorance, and probably comotio-cerebri might be applied, rather than that of concussion. We know that concussion of the spine is not shock. Moreover, as advances are made in medicine the list of functional diseases are disappearing. Formerly, it was satisfactory to make a diagnosis of a person being paralyzed, but the term paralysis is obsolete, and so the functional diseases are, as advances are made, disappearing. We cannot expect to have changes take place of a physiological or pathological nature without some textural change; I mean if these changes persist, are constantly making themselves evident; they cannot last four weeks. Temporarily, we might have a functional derangement of the cord in which some symptoms were manifested, but as for weeks, months and years, as in the case of Dr. Phillips, it is unreasonable, in the light of our pathological literature, to expect without some structural changes. A significant fact in regard to concussion of the spine is that such a large proportion of the cases are in connection with some suit for damages, especially those which are obscure.

DR. J. G. KIERNAN: I did not hear the paper, and am not therefore very well prepared to discuss it. With regard to one point raised by Dr. McArthur I shall have to take issue; first, as to the textural question. It seems to me perfectly possible that for a long time there may be very marked symptoms without textural lesions. Cases have been under observation in which no lesion was found, and yet in which the symptoms were well marked. I was much pleased to hear Dr. Lyman refer to the fact that many cases could be considered rather as cerebral than spinal cases. The fact is lost sight of, that when the patient recovers from cerebral concussion he passes out of the surgeon's hands. When I was connected with the institution on Ward's Island,

I remember distinctly, four recoveries from cerebral concussion that died in two or three years, under my charge in the insane hospital; they did not recover from cerebral concussion. I think if cerebral concussion was as frequently made a matter of litigation, and as frequently examined as spinal concussion a great many more cases might be developed. A large number of the recoveries drift into the insane and poor hospitals and die there.

In regard to the point raised by Dr. Lyman, particularly with respect to the cases classified as mental disorder: The fact that many of these make good recoveries, is signally shown in a case of Page's that I have always been suspicious of. Page relates the case of a woman which he decided, after careful examination, was one entitled to pretty heavy damage; she was incurable, and yet she recovered, married, had children, and lived a happy life thereafter. But, unfortunately, very often those cases do not have such a fortunate outcome. Dr. McIlvaine, at a meeting of railway surgeons, reported a case in which a woman rallied from the effects of an accident, and he believed her to be a malingerer; but finally the woman began to evince all the symptoms of advanced myelitis, and the doctor was persuaded that her disease had started at the accident to which she traced it.

With regard to mental disturbances always being evidence of direct cerebral trouble, the question is certainly one which is open to doubt. We all know who have had experience with locomotor ataxia, that there are very marked mental disturbances which occur in consequence of that disorder; they occur in typical cases, and if they can occur from a spinal disorder of that kind, why not from the condition known as spinal concussion. That there is a great difficulty in diagnosis is shown by the elevated railroad case in Brooklyn. It was a case in which a man pushed a woman down stairs. The question as to whether the case was one of spinal concussion or of hysteria was debated, and evidence given on both sides by very eminent neurologists; I think on the side of the concussion were Drs. Hammond and Spitzka, and that eminent railway expert, James J. Johnson, who has written more on the subject of spinal concussion than any other person. On the other side were Landon Carter Gray and Stein. In that case the hysterical symptoms were well marked, and yet there was some spinal disorder, as the woman died with decided myelitic symptoms.

DR. C. E. WEBSTER: I think the point Dr. Lyman advanced is one of a great deal of interest; that is, that in these cases of spinal concussion there may be a fundamental change in the nervous system of the individual, so that after the concussion or accident takes place the fundamental trend or principle of his organization may be changed; he may be a different individual.

DR. CLARK GAPIN: On the very threshold of the subject we find this difficulty, that it is in a more or less chaotic state, and any discussion of it at present must be desultory, a sort of patchwork discussion. A few years ago we thought we were pretty well grounded, and those of us who read Erichsen at that time without any very critical feeling, accepted what he had to say, and passed it by as a subject which a master mind had solved apparently for all time to come; but a more critical investigation of Erichsen's work shows that it is a master of expression rather than a masterly statement of fact. I think Erichsen's work may be criticised in the very name which he gives to the injury; he calls it concussion of the spine. Now if any one were to approach Erichsen with that very array of symptoms relating to the brain, he would never think of calling it concussion of the brain. Concussion of the brain we are accustomed to associate with positive physical and mental manifestations, and symptoms developed at the time or immediately following the injury. In his concussion of the spine there are no such symptoms, the symptoms may manifest themselves weeks, months or even years afterwards, and he is willing to accept them as evidence of this concussion. I think not only do the symptoms not bear out the name which he has applied, but there is a very different anatomical condition. The brain is penned up in a bony covering that is very close to the brain tissue; whereas the spinal cord floats loosely in a bony casing surrounded by a fluid, and at all points it is considerably distant from its bony surrounding, hence, the greater difficulty of any concussion occurring there.

With regard to the cases that have been presented, I think that those cases in which there is a positive physical injury to the spinal cord are very rarely passed by; there is very rarely any difficulty that I have noticed. In my observation there is no dispute among surgeons where the spinal cord is injured; we know the symptoms of even a blood clot on the spinal cord is very pronounced, and they are unquestionable; yet we are asked to believe that a great injury has been sustained by the cord where there are none of these, even transient symptoms. Some time ago I had a case in which it became my duty to investigate Erichsen's cases closely. I took all the cases and arranged them under three heads: the objective symptoms, the subjective symptoms, and those which could be maligned. If you ever go through that experience you will find how comparatively few the cases are which Erichsen gives as proof of concussion of the spine.

I agree with Dr. Lyman's statement of his arrangement and classification of these injuries,

that where these symptoms follow a considerable time afterward, or where they are of a functional nature, that is to say, where there are symptoms that are elusive in their character, which you cannot grasp, they are mental in their quality, and in some cases they may all result from the injury.

Sometimes I think, from the tremendous shock of a railroad accident, this disarrangement may occur, and the individual be a sufferer for his whole lifetime, but such cases are extremely rare and generally marked by present symptoms. The other class of cases are those which arise afterwards, and heredity has a great deal to do with these cases; we find some of them are individuals who have inherited imperfect nervous organizations; we find others who have, by dissipation, brought themselves into that condition, and when they come to sue a railroad company, no matter what their past life has been, what the heredity has been, it is the fault of the railroad company.

DR. E. W. ANDREWS: All authorities, including Erichsen, himself, positively assures us that spinal injures received in railroad accidents are in no essential way different from those received in any other manner. Cases have been cited running back centuries in medical history of exactly this injury which Erichsen describes as railway spine. In this paper we have not attempted to discuss the pathology; this is well mapped out by pathologists of note. While it is true, as Dr. Lyman states, that these cases sooner or later cease to be surgical, yet the pathology of injuries is not essentially different; that we know from the pathology of disease. In at least one disease, locomotor ataxia, there seems to be very positive testimony that injury may be the exciting, even the predisposing cause. Leyden has asserted this. Pitt is strongly of the opinion that locomotor ataxia may be produced directly by injury, and more especially he insists that a case of locomotor ataxia may, as a result of railway injury, be produced. Of course if this be the case, if a disease of the spinal tract may be produced by injury, it would be supposed that other diseases might be produced by traumatism, but necessarily an understanding of the minute pathology of the cord, and especially the microscopic appearance of the tract, would be indispensable to one who would give testimony in a court of justice in cases involving important injuries. Within a short time, to my knowledge, one expert has been trapped in this manner in an important case. A prominent railway surgeon, an expert, went on the witness stand and, with what seems like temerity, acknowledged, in testifying in relation to a case of so-called railway spine, that he was unacquainted with the work of Page. Well-meaning surgeons who are willing at the present day to go into a court of justice and give the pathological views of Erichsen, I think are liable to be sadly caught up.

In place of such terms as spinal concussion it is perhaps better to use definite descriptive compounds; intra-spinal hemorrhage can undoubtedly be applied to a large number of spinal symptoms; laceration of the ligaments can also be used. Around the spinal cord there are a set of veins that can scarcely be lacerated without producing rupture, and hæmorrhages may occur upon the membranes or in the substance of the cord. Traumatic myelitis is undoubtedly a condition which at certain levels of the cord, can exist. Gower speaks of cases of traumatic myelitis in which a post-mortem has revealed all the conditions produced in operation from thickening of the membrane there. Some slight injury to the bones is another condition. And so we may classify the actual state of the cord, and in a very large number of cases specify accurately the lesion. As to pure concussion, it may be defined as a stunted condition of the cord, which is inferred to have undergone some form of molecular derangement by which its function is for the time being stunted. Cases are probably on record in which post-mortems, after spinal injury, have failed to reveal any lesion whatever in the tissue. I question, however, whether such cases have been subjected to complete and minute microscopical examination such as is at present considered essential. Lidell has related a case in which a post-mortem examination was held on a patient who had died, as was supposed, from concussion of the cord. At first no sign revealed itself in the appearance of the cord, and yet a more careful subsequent examination showed in the interior of the cord itself a globular clot which had produced compression and death. The question of Dr. McArthur, "Does Concussion Exist?" it is perhaps impossible to answer. My present impression is that transiently it may.

I will close by saying that Sir Joseph Bryant, as good surgical authority as we have to-day, has recently written and published a paper in which he claims that concussion of the brain has no existence as a pathological state. Hilton many years ago denied that any case of death from concussion of the brain had been examined which failed to reveal structural changes in the gross appearance. The tendency of the present time is to more and more careful examination of these traumatic troubles of the brain and cord. Much of the symptomatology of concussion is inferential, but from the investigations that are being carried on we will undoubtedly be able to define a structural condition corresponding to every symptom which injuries produce.

Philadelphia County Medical Society.

Stated Meeting, October 10, 1888.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. G. E. DESCHWEINITZ presented the following paper on

ACUTE UNILATERAL OPTIC NEURITIS, WITH THE REPORT OF A CASE.

Cases of sudden failure of sight in one eye with little or no ophthalmoscopic changes are occasionally encountered, in which the attack is attributed to exposure to cold. Sometimes in these instances congestion of the optic disk is present, and a retro-ocular neuritis has taken place. Other cases of acute optic neuritis, sometimes monocular, sometimes double, are on record. Thus Max Haadel[1] observed nine cases, some single and some double, with and without defects in the field of vision, usually with serious disturbance of sight, mostly with pronounced inflammation of the papilla and neighboring retina, in which exposure to a draught of air was the imputed cause. Periostitis at the foramen opticum was doubtful, and the absence of syphilis, sugar and albumen, lead and other poisons was assured in every case. In M. Schlüter's[2] statistics, among thirty-eight cases of neuritis and neuro-retinitis, seven are classed as primary, while the remainder are arranged as follows: thirteen of central origin, six from specific causes, four followed as the result of pathological orbital processes, two from abuse of alcohol and tobacco, two from albumen, and one each in connection with the puerperal state, after injury, from acute myelitis, and from hereditary reasons. E. Schmidt,[3] in an examination of the cases of optic neuritis in the clinic of Prof. Hirschmann, at Charkow, found, among 120 cases in which the etiology was recorded with some degree of exactness, two instances of papillitis or papillo-retinitis due to cold. Voissius[4] has recorded a case of monocular optic neuritis in a man aged 61, the attack coming on as the result of catching cold during a long wet drive. Recovery, with a hemiopic defect in the field of vision, was the outcome of the disorder. Roi[5] reports some examples of optic neuritis which he looked upon as rheumatic. They appeared monocular, were accompanied by a speedy diminution of visual acuity passing into amaurosis, but not, however, to the exclusion of a return to normal sharpness of sight. H. F. Hansell[6] describes two instances of acute optic neuritis of rheumatic origin, one monocular in a healthy married woman, and the other double in a man aged 31. In each there was sudden loss of vision, swollen optic disks, and under treatment a rapid return to normal visual acuity. In Dr. Hansell's paper references to analogous cases are recorded, and L. W. Fox[7] has recorded an instance of acute monocular optic neuritis. Recently R. H. Derby[8] has reported a case of uniocular neuro-retinitis in a girl whose father had had syphilis, but who had no other manifestation of constitutional taint. There was at first a central scotoma, then optic neuritis. Light perception was lost, but under mercurial inunctions and iodide of potash the swelling of the disk, which had amounted to 7 D., subsided, and fair vision was recovered. Cases of optic neuritis without evident cause are occasionally recorded, as one by Power.[9] The patient was an anæmic lad of 17; the neuritis was double; albumen and syphilis were absent; the lad had had two attacks of rheumatism and his father was gouty. Friedenwald[10] describes an instance of right optic neuritis in an otherwise healthy girl of 14, preceded by violent headache and other symptoms indicating grave cerebral disturbance, but in which perfect recovery followed. He classed her case with these examples of optic neuritis, referred to by Juler, occasionally met with in young girls, the cause assigned being some menstrual disturbance, the presence of which, however, careful inquiry often fails to elicit. Usually the neuritis is preceded by severe headache and the prognosis is unfavorable. No further reference to the many cases of neuro-retinitis described in connection with irregularities of the menstrual functions need be made. Hirschberg[11] has seen several instances of primary optic neuritis, whose course is very typical. The disease is divided into three stages: the first, characterized by great visual disturbance, with slight ophthalmoscopic appearances; the second, by diminution of the visual disturbance and very marked inflammation of the disk; and the third, usually by almost complete recovery with pallor of the disk. The cases mostly occur in women, but are not connected with derangement of the sexual functions. Partaking somewhat of the nature of such cases, but not without a history of exposure as the exciting cause, is the subject of this communication.

Mrs. W., æt. 40, consulted me on July 11, 1888, because for a week past she had suffered from neuralgic pains in and above the eyes, most marked upon the right side. Bright light was distressing, and pain followed when the eyes were rolled upward; slight tenderness was ap-

[1] Max Haadel, Inaug. Diss., Berlin, 1885. Abst. Centralbl. f. Prakt. Augenheilk., p. 223, 1886.
[2] Schlüter, Inaug. Diss., Berlin, 1881. Abst. Nagel's Jahresbericht, xii Jahrgang, p. 305.
[3] Schmidt, Wjestnik Ophth., 1885, p. 275. Archives of Ophthalmology, vol. xv, p. 249.
[4] Voissius, Klin. Monatsbl. f. Augenheilk, xxi, p. 298.
[5] Roi, De la névrite optique humatismale, Paris, 1886.
[6] H. F. Hansell, Med. News, Aug. 7, 1886.
[7] L. W. Fox, Amer. Journ. Ophthalmology, July, 1884.
[8] Amer. Oph. Med. Soc, 1888. N. Y. Med. Journ., Oct. 6, 1888.
[9] Power, Trans. Oph. Soc. U. King, vi, pp. 361-368, 1886.
[10] A. Friedenwald, N. Y. Med. Journal, Feb. 5, 1887.
[11] Hirschberg, Centralbl. für Prakt. Augenheilk., Nov., 1887.

parent when pressure was made upon the right globe. The amplitude of accommodation was 3.5 D., and there was high insufficiency of the internal recti, so that a divergent squint was evident when the eyes attempted to fix a point 15 cm. distant. The fundus of each revealed no gross lesions, save a slight retinal haze around the upper and lower edges of the right disk, the deeper layers of which were gray. The maculas were normal, and the refraction appeared to be a simple hypermetropia of 1.5 D. In the absence of any general derangement the peri-orbital pain was attributed to eye-strain, and atropia drops were ordered for the purpose of measuring the refraction error. The correcting glass proved to be + 1.5 S. and with it normal vision was acquired. During the application of the atropia the neuralgia disappeared. The drops were discontinued and the patient directed to return in two weeks. During the measurement of the refractive error, the patient, on several occasions stated that although she saw the same number of letters with the right eye that she did with the left, she failed to see them with the same distinctness; but no changes at this time were present in the fundus. This indistinctness gradually assumed the appearance of a definite, dark area in the field of vision, the peri-orbital pain returned, and five days after the last ophthalmoscopic examination had failed to discover any changes in the disk or retina, she returned with the vision sunken to ability to count fingers and well-marked right-sided optic neuritis. All edges of the disk were woolly and its upper margins entirely hidden, while a flame-shaped hæmorrhage was situated above and to the inner side. The apex of the swelling was + 3. D., the vessels were about normal in size, and the macula free from disease. The pupil was of medium size and acted sluggishly to light and shade. A few days before this time she had gone on an excursion with her children, became much overheated, and had afterward waded about in a neighboring brook. It was in the evening of this day that the neuralgia returned, the definite dark area appeared in the field of vision, and shooting pains attacked the deep muscles of the thighs. Further examination proved an entire absence of any symptoms pointing to brain disorder; the heart and lungs were normal, and the patient was not anæmic, there had been no suppression of the menstrual flow and this function was natural, no active uterine disease existed, except a slight prolapsus which was not then under treatment. The urine was free from albumen, sugar, and tube casts, and the last recent illness, several years before, had been an attack of peritonitis from which a good recovery had resulted.

Dr. James Tyson, who saw the case in consultation, confirmed the accuracy of these examinations. Syphilitic infection and the action of lead or other poisons were carefully excluded. The vision continued to sink, and on the following day was reduced to faint quantitative light-perception and the disk, if anything, was slightly more swollen. The temple was freely leeched and the patient directed to take fifteen grains salicylate of sodium before each meal, and seven and a-half grains of iodide of potash, with one-twenty-fourth of a grain of bichloride of mercury after each meal. Three days later, or on July 30th, the vision was slightly improved to the ability to see the hand move and the pain was distinctly better. The medicine was continued and small fly blisters ordered placed upon the temple. August 1st, the salicylate of sodium was discontinued, but the other medications continued, vision improved and large letters (Sn CC) were faintly recognized. August 6th, marked improvement, $V. = \frac{5}{xxxv}$; edges of the disk visible all around and only a faint remnant of the hemmorrhage. August 20th, neuritis had practically subsided; $V. = \frac{5}{x}$, form and color fields normal in extent; no scotomata; ordered one-twenty-fourth of bichloride of mercury after each meal. September 9th, disk pallid, and all traces of the neuritis had disappeared.

In the absence of any symptoms pointing to cerebral disturbance, with no uterine disease save a slight prolapsus and the history of a leucorrhœa no longer active; with the menstrual functions normal; with a healthy circulatory apparatus and the urine free from albumen, sugar, and tube casts, and with the direct account of overheating and exposure, we may fairly conclude that this was an instance of genuine, acute optic neuritis. The history shows that before any opthalmoscopic changes were evident, and before there was any positive diminution in visual acuity, the field of vision was invested with a haze which afterward assumed a definite, dark form, probably coincident with the first appearance of the inflammation around the papilla and the loss of sight. Hence it is evident that the attack was in process of formation and was precipitated by the wetting of the feet and sudden cooling after an overheating. Cases of optic neuritis apparently due to exposure, as has been pointed out by Leber and others, are mostly monocular; and rheumatism, perhaps upon insufficient evidence, has been cited as the cause. Gowers,[12] writing upon this point, says: "Neuro-retinitis has been loosely ascribed to rheumatism, but only on the ground that it has sometimes appeared to be due to cold." Rheumatic inflammation at the back of the orbit, however, according to the same author, may damage the optic nerve. Michel,[13] commenting upon a reported case of acute, peripheral retro-bulbar neuritis, remarks that he has never observed a

[12] Medical Ophthalmoscopy, 2d ed. p. 230.
[13] Nagel's Jahresbericht, xvii, Jahrgang, p. 381.

"rheumatic" neuritis and considers the assertion of such as a mark of ignorance of the causes especially operative in the production of inflammation of the optic nerve.

Hansell (loc. cit.) thinks "that a true rheumatic inflammation of the fibrous coat of the nerve between the optic foramen and the sclerotic" quite possible, but owing to the infrequent opportunity for section and examination admits that "our pathology is, at best, speculative." The central scotoma which existed in this and similar cases denotes an affection of the sheath of the nerve extending into its substance, not as Hirschberg remarks, as would have been supposed before the macular fibres were discovered, a central inflammation extending outward. The prognosis depends to a certain extent upon the site of the lesion and the termination may be favorable, as in the case reported, or a permanent atrophy of the disk may result. Hirschberg (loc. cit.), in his cases of primary optic neuritis, has found usually that the second eye is attacked; the interval may be days, or weeks, or months. Three of his cases illustrate this fact. A woman, aged 42, suddenly lost the sight of the right eye; in six days from the beginning of the attack this was well, but the left eye was attacked and optic neuritis developed; in three weeks recovery had taken place and the fundi were normal. In a second case a woman, aged 20, had slight temporary loss of vision in the right eye three weeks before coming under observation for loss of vision in the left, which came on eight days before. Four months later she came with the right eye similarly affected, while the left had practically recovered. A third instance was that of a peasant girl, aged 17, who had her right eye attacked in 1878, recovered, and in 1884 had her left eye attacked, which also recovered. The treatment has already been discussed. Leeching of the temple, followed by blisters, diaphoresis, together with the salicylates and iodide of potash, yield the best results. Improvement may take place before the remedies have time to take effect.

DR. RANDALL: I can add nothing to Dr. de Schweinitz's admirable presentation of the subject; but would like to reiterate the importance of early recognition and prompt treatment of such cases. I feel very sure that the issue depends very largely upon whether early alterative treatment is instituted, since upon the limitation and prompt removal of the exudation in the nerve and retina depends the possibility of a return to the normal with preservation of the sight.

DR. JAMES K. YOUNG exhibited the

MORTON OPHTHALMOSCOPE.

The Morton ophthalmoscope presents some new features which may be of interest to some of the members of this Society. It is made by Pickard & Curry, London, and as an instrument is well balanced, fits the eye well, and as a piece of mechanism is perfection itself. It is a modification of the Gower's opthalmoscope, as are all modern English instruments, but in the position and movement of the lenses differs from this and all others. The Rekoss disk is there replaced by an elliptical trough containing the lenses. These are simply confined in the channel, are unattached to each other, and are moved by a wheel below, and pass around a wheel above. In this respect it resembles the Couper instrument, in which the lenses are attached to one another as an endless chain, but is an improvement in the right direction. It has, in all, thirty-three lenses. In the trough are eighteen concave lenses from — 0.5 to 30 D. Eleven convex lenses from + 0.5 to 12 D., and on the disk has four additional lenses, a — 10 D. and — 50 D., and a + 0.5 and + 20 D. These admit of as many combinations as any instrument I am familiar with. It has three mirrors, a small concave mirror of about 6 cm. focal length, fastened to a collar, a large concave mirror of about 29 cm. focal length, and a plane one. These are all attached, and the apertures come readily over the sight hole. It has below the index dial a pupillometer, which adds to the usefulness of the instrument. It fits accurately into a rosewood case, and has a convex lens for indirect method.

DR. RANDALL: I feel that a discussion of minutiæ as to the opthalmoscope is hardly in place; but as to the point emphasized, that the instrument contains a concave lens of fifty dioptres, I must confess my scepticism as to its value. Cooper put a concave 72 D. in his instrument and told me that he was self-condemned as an ophthalmoscopist in having nothing stronger than 24 D.; yet when asked if he ever had use for the strong lens, admitted that a case calling for it was seen but once or twice a year. Even should one of the very rare cases of high myopia be met, the eye-ground would be better seen (if at all visible in the upright image) by placing a strong concave lens close in front of the examined eye.

DOMESTIC CORRESPONDENCE.

The Medical College of Virginia.

Dear Sir:—There has appeared in THE JOURNAL several articles reflecting upon the Medical College of Virginia, which are so flagrantly at variance with the truth, that the Faculty feel called upon to make the following statement of the facts, which the writer in THE JOURNAL has distorted in many ways. It is only in deference to the official position of THE JOURNAL as the accredited organ of the Medical Association that it is deemed necessary to notice these attacks, for the individual opinions of the author are simply a matter of indifference to the Faculty, being palpa-

bly the reflex of an inimical partizanship in this city.

Briefly put, the Medical College of Virginia is charged by its enemies:

1. With being hostile to the principles of the higher standard of medical education than at present obtained in the examinations of the colleges.

2. With being opposed to the establishment of a State Medical Board in pursuance of that object.

3. That it attempted, through its students, at the last session of the Legislature to amend the law, so far as to substitute for it the proposition to exempt Virginia students from its operations.

In denial of these assertions it is well known that the Medical College was one of the prime movers in getting the law passed by the Legislature, and, but for the zealous personal exertions of the members of the Faculty, that it would have failed to be enacted. After an experience of two years, it was found to be so very imperfect in many of its features that the Medical Society of Virginia and the Examining Board came before the Legislature asking that it be amended; the Board wishing to have the feature permitting an applicant to appear before any three members individually, instead of the entire Board, abolished; and the Society asking that the number of members of the Board be reduced from thirty to twelve, and that a diploma should be a preliminary qualification.

The students at the time the amendments were before the Legislature were incensed at the action of the Board at its last session when applicants from this College were rejected on account of what they believed was personal hostility of three of the members to the Faculty, and fearing that in future examinations the students of this College would be vicarious sufferers for such animosity, petitioned the Legislature to exempt the graduates of the two State institutions from the operation of the law.

A committee of the students waited upon the Dean and requested the co-operation of the Faculty in their movement, but were plainly and positively told that the College was committed to, and believed in the principles of the law, and therefore could not aid them in their attempt to abolish it or to get its students exempted from its operations. The Faculty, however, at the same time, claimed the same liberty of opinion in discussing the proposed amendments that were being offered, as other members of the profession, and did not concede that an objection to two or three members of the Board implied any hostility to the wish "to elevate the standard of medical education." To emphasize this fact, the Dean was instructed to appear before the Legislature and re-affirm the wish of the Faculty that the law, imperfect and unsatisfactory as it was, should remain in its original form rather than encounter the risk of defeat in contentions over the amendments. Had it been the wish of the Faculty to oppose the passage of the bill, it will not be denied that there would have been any difficulty in defeating it, as a large number of legislators deferred to its wishes in the matter.

The writer in THE JOURNAL persists in placing the Medical College of Virginia in a false attitude in stating that the percentage of its graduates before the Examining Board was so small as to establish its meagre teaching qualifications in comparison with other institutions in the country, whilst the facts are, as the following report of the Examining Board will show, that it had the smallest number of graduates rejected of any other college whose number of applicants were equal to it.

RESULT OF WORK DONE BY MEDICAL EXAMINING BOARD OF VIRGINIA.

INSTITUTIONS REPRESENTED BEFORE THE MEDICAL EXAMINING BOARD OF VIRGINIA. (From Jan. 1, 1885, through October 9, 1888.)	Total No. of Applicants from each.	Rejections, Total from each.	Certificates issued by Med. Ex. Board of Va.	No. Rejections making Second Applications.	Second Rejections.	Certificate Issued on Second Application.	Incomplete Examin'n by withdrawals, etc.
Medical College of Virginia	57	8	48	3	..	3	1
University of Virginia, Med. Dep't.	33	1	32	..	..	..	..
College of Physicians and Surgeons, Baltimore, Md	34	10	24	6	2	4	..
Univ. of Maryland, Med. Dep't, Baltimore, Md.	34	9	25	3	1	2	..
Jefferson Med. Col., Philadelphia, Pa.	12	3	9	2	..	2	..
Univ. of Penn'a, Philadelphia, Pa.	2	..	2	..	..	..	..
Bellevue Hosp. Med. Col., New York.	6	1	5	1	..	1	..
Univ. of City of New York, Med. Dep.	7	2	5	1	1	..	..
Col. of Physicians and Surgeons, N.Y.	3	..	3	..	..	..	..
Louisville Medical College, Ky	2	1	1	..	..	..	..
Hosp. Med. College, Louisville, Ky.	3	..	3	..	..	..	..
Kentucky School of Med., Louisville	2	..	2	..	..	..	..
University of Louisville, Ky.	1	..	1	..	..	..	..
Med. Dep't of University of Tennessee, Nashville.	1	..	1	..	..	..	..
Vanderbilt Univ., Med. Dep't, Tenn.	3	1	2	1	..	1	..
Detroit Med. College, Mich.	2	1	1	1	..	1	..
Univ. of Michigan, Ann Arbor, Mich.	1	..	1	..	..	..	..
St. Louis Medical College, Mo.	1	..	1	..	..	..	..
Columbus Medical College, Ohio.	3	2	1	1	..	1	..
Cincinnati Medical College, Ohio	1	1	..	..	..	..	..
Med. Dep't Howard University, Washington, D. C.	7	6	1	4	4	..	..
Leonard Med. Col., Raleigh, N. C.	3	1	2	..	..	..	..
Med. Ded't University of Georgetown, D. C.	1	..	1	..	..	..	..
Hahnemann Homœopathic Medical College, Philadelphia.	2	..	2	..	..	..	..
Medico-Chir. Col., Philadelphia, Pa.	3	3	..	2	2	..	..
Geneva Medical College, New York.	1	..	1	..	..	..	..
Heidelburg, Germany	1	..	1	..	..	..	..
Baltimore Medical College, Md.	1	..	..	..	..	..	1
Colleges Unknown.	4	..	3	..	..	..	1
Non-Graduates.	11	4	5	..	..	..	2
Cleveland Homœopathic Hosp. College, Ohio.	1	..	1	..	..	..	..
Total number of Examinations.	240	54	181	25	10	15	5

Number of Applicants examined by Individual Examiners out of Session. 117
Number of Applicants examined by Board in Session. . . . 123

N.B.—The first and second columns add up 243 and 184 respectively; but three of the applicants each gave two Colleges of graduation.

It will be seen from the above table that 57 students of this College were examined by the Board, and about 7 per cent. were rejected, but that of the rejected three were reëxamined five months after-

wards and were given their licenses. The statistics regarding the students from Baltimore, Philadelphia and New York show a rejection of 25 to 30 per cent.

At the examinations in April last the State Medical Examining Board gave certificates to practice medicine to three of the students of this College whom the Faculty the week previous had rejected for not reaching the standard required by it.

We shall pass by in silence the prophecies of the writer in THE JOURNAL that the Faculty of the College intended going to Norfolk for the purpose of attacking the Medical Board and preventing its renomination, considering it necessary only to refer its readers to an accurate report of the meeting, where Dr. Cullen, the Dean of the Faculty, seconded the resolution of Dr. Chancellor for the reappointment of the entire Board, and embraced that opportunity of refuting the misrepresentations in regard to the action of the College, which was received by the Society with great gratification and satisfaction. Dr. Cullen, in substance, stated to the Society what is written here, and added that not only was the Medical College of Virginia in accord with the examining law of the State, but that it would go further than it does and join the Medical Society of Virginia in petitioning the Legislature to compel the two State institutions to have preliminary examinations and a three years' graded course. I am very respectfully yours, J. S. DORSEY CULLEN,

Dean of the Faculty, Medical College of Virginia.

MISCELLANEOUS.

TYPHOID FEVER seems to have taken possession of Providence, R. I. From September 1 to December 5 more cases were reported than since the epidemic of 1882, which followed a very heavy rainfall, but the rainfall for the past three months breaks the weather record, and in this connection it is significant that typhoid is increasing very rapidly. From December 1 to December 5, 37 new cases were reported. It seems that the warning of Health Officer Chapin has not been heeded. In his last report he says: "The Board of Public Works reports that they have during the year succeeded in removing all the privies from the banks of the Pawtuxet River. There are, however, certain places where drainage may at times get into the river, or where it may be washed in during freshets. The bleacheries, dye works and wool scouring works still discharge their effluent into the river. It also happens that occasionally dead animals, slops, night-soil and other offensive matters are thrown in. Much of this pollution can be prevented by a continued inspection of the banks of the stream, and I am glad to be able to report that the Board of Public Works have detailed a man for this purpose. Still, it cannot be hoped that every source of pollution can be permanently removed from a river flowing in such a thickly settled region, and through so many manufacturing villages as does the Pawtuxet. The danger of pollution, either accidental or intentional, will always be considerable, and we must remember that in epidemics of typhoid fever in other cities and towns, a single case of the disease, on the banks of the stream which serves as the water supply, and that, too, far above the intake, has been clearly proved to be the cause of the outbreak. Such being the case, we cannot afford to run any risks, and if the improved methods of precipitation and filtration which have been recently brought into use are what is claimed for them, it would be highly advantageous if they could be adopted here. As in addition to removing disease germs, such methods render the water clear and free from sediment, their adoption would be most acceptable to our people. The subject is one that should receive careful and immediate investigation. While it may be possible to filter the water on a large scale before it enters the mains, the use of domestic filters on the house taps is not only useless, but dangerous, and has been discouraged by this Department on all occasions." Dr. Chapin said that the importance of thoroughly boiling Pawtuxet water before taking it into the system could not be too strongly emphasized. While boiling may not improve the taste of the water, it will generally kill the germs of disease it contains.

EXPOSURE OF A QUACK.—Aaron Geismar, alias Dr. Geismardo, alias Professor Albert Le Grand, alias Professor Ernest De Blanc, who is known in Chicago, has come to grief in New York at the hands of Miss Nellie Bly, a newspaper writer. He had announced in a flaming advertisement as follows:

PROF. ERNEST DE BLANC,
the Famous Chevalier Electrician of Paris,
will exhibit HIS SKILL AND TREAT THE AFFLICTED FREE on the stage
IN VIEW OF THE AUDIENCE.

Nellie Bly visited his house and discovered that his electric apparatus consisted of a battery in a back hall of his house, and a nickel-plated spring at the door by which he turned the electricity off and on. By means of wires (concealed by a rug) in the floor, he would apparently act as a living battery upon his patients. This discovery led to the disclosure of his life of fraud. He started out in Portland, Ore., several years ago, as Dr. Geismardo. While there he assaulted one of his women patients and was imprisoned. Next he appeared in San Jose, Cal., where he made a sudden departure with money advanced for treatments which he never gave. He turned up at Toledo soon after and announced his lectures and treatment, but did not put in an appearance at the hall. In July last he was billed in Buffalo as Professor Albert Le Grand. On that occasion the Chicago *Herald's* Buffalo correspondent telegraphed the following:

Dr. Edward Storck, chairman of the Erie County Medical Censors, to-day gave "Professor" Albert Le Grand notice to leave town or be arrested for practicing without a diploma. Le Grand gave free lectures in Music Hall, and claimed to cure the lame, halt and blind in Biblical fashion. Dr. Storck said: "Professor Le Grand has decided to leave the city within twenty-four hours. He admitted to me that he had no diploma, and that he was no physician, but a healer. When I asked him if he did not take fees he said that he did. Then, after a good deal of bluster, he gave in. I have learned some of his history. He was a Dr. Geismardo in Portland, Ore., and claimed to be a member of the Society of Sciences of Paris. He also exhibited a decoration, which he claimed to be a cross of the Legion of Honor. He left that city under a cloud. He then turned up in Denver, St. Louis, Kansas City, Baltimore and Boston. He was also arrested in Milwaukee. The society could prosecute him here if it wished to, but if he leaves the city that will be enough. Le Grand speaks French fluently, and owned up to me that his magnetic touch was caused by an electric belt concealed in the palm of his hand. He had three or four dummies traveling with him who came upon the platform and were cured by him.

In July the "doctor" made his appearance in New Orleans. He spent considerable money in advertising, hotel expenses, and theatre rent, but had to leave the city

before getting any returns on account of previous swindlings in that city. Finally he went to New York, and there his whole record has been made public.

HEALTH IN MICHIGAN.—For the month of November, 1888, compared with the preceding month, the reports indicate that tonsillitis increased, and that typho-malarial fever, diarrhœa, dysentery, cholera morbus, and cholera infantum decreased in prevalence.

Compared with the preceding month the temperature for the month of November, 1888, was lower, the relative humidity was more, the absolute humidity and the day and night ozone were less.

Compared with the average of the month of November, in the nine years, 1879-87, diphtheria, intermittent fever, consumption of the lungs, typhoid fever, pneumonia typho-malarial fever, whooping-cough and remittent fever were less prevalent in November, 1888.

For the month of November, 1888, compared with the average for corresponding months in the nine years, 1879-1887, the temperature was slightly higher, the absolute humidity was slightly more, the relative humidity about the same, and the day and the night ozone were much less.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of November, 1888, at twenty-six places, scarlet fever at forty-one places, typhoid fever at twenty-three places, measles at six places and small-pox at seven places.

Reports from all sources show diphtheria at ten places less, scarlet fever at nine places more, typhoid fever at twenty places less, measles at one place less, and small-pox in seven places more in the month of November, 1888, than in the preceding month.

YELLOW FEVER IN CUBA.—A Washington physician who is well informed upon West Indian affairs, says an Eastern paper, makes the surprising statement that the native Cubans do not desire to stamp out yellow fever. They suffer but little from it themselves, and are glad to have it kill about 1,000 Spanish soldiers every year. If this is true it is a shocking example of the possible results of race and national prejudice. Cuba is the fever's winter home, and from there every summer it begins a raid upon our Southern cities. It may yet become necessary to annex the island to the United States in order to have it put under proper sanitary condition. As this does not appear to be practicable at present, the best course now open is to take precautions for keeping the infection out of our country next year. Early in the season a rigid quarantine should be established, and the authorities of all Southern cities liable to visitation should see to it that all filth is removed from the streets before it can harbor and propagate the dreaded disease.

THE PENNSYLVANIA STATE INSANE HOSPITAL.—The Trustees of the State Hospital for the Insane at Norristown held their regular monthly meeting on Dec. 8. Dr. Chase reported 848 patients in the male department at the end of November, and Dr. Alice Bennett reported 827 patients in the female department. The physicians report the general health of the patients exceptionally good. Dr. Chase recommended that photographs be taken of the patients in order to keep the likenesses with the record in order to distinguish those of the same name, and to be used in case a patient escapes, and the recommendation was voted down. Trustee Stinson remarked, "we want no rogues' gallery here." The report of the Trustees concludes as follows: The Hospital has now a population of 1660 patients and if the natural increase of the insane population of the district is to be provided for it will be necessary to put up an additional ward and supply buildings. The Trustees believe that they can put up these buildings to accommodate 660 patients, 330 of each sex, for about $400 per bed. They therefore recommend to the Legislature to appropriate $250,000 for that purpose.

DR. A. F. RITCHIE has resigned the Chair of Anatomy in the Medical Department of the University of Minnesota.

INFLUENZA is reported to be epidemic at Fort Dodge, Iowa, and in its vicinity.

HEAD-CHEESE POISONING is reported at Brush Creek, Iowa, there being about 30 cases, none serious.

A CODE OF VACCINATION RULES has been adopted by the Board of Health of Columbus, Ohio, in regard to the pupils and teachers in public schools. A system of house inspection has been adopted, and is being carried into effect.

DR. R. S. SABIN, aged 56, of West Troy, a graduate of the Albany Medical College, died on Dec. 4.

A NEW HOSPITAL has been erected at South Bay City, Michigan.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department U. S. Army, from November 30, 1888, to December 7, 1888.

Major John W. Williams, Surgeon U. S. Army, is hereby relieved from further duty with the battalion of the Second Artillery at Ft. Wadsworth, New York Harbor, and will proceed to join his permanent station, Jackson Bks., La. Par. 3, S. O. 256, Hdqrs. Div. of the Atlantic, Governor's Island, New York City, December 5, 1888.

First Lieut. Robert R. Ball, Asst. Surgeon, leave of absence granted in S. O 129, Dept. of the Missouri, October 18, 1888, is extended one month. Par. 11, S. O. 279, A. G. O., Washington, November 30, 1888.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending December 8, 1888.

Surgeon J. F. Bransford, detached from Smithsonian Institution and granted six months' leave, with permission to go abroad.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine Hospital Service, for the Two Weeks Ending December 8, 1888.

Surgeon G. W. Stoner, when relieved, to proceed to Detroit, Mich., and assume charge of the Service. November 26, 1888. Granted leave of absence for thirty days. November 28, 1888.

P. A. Surgeon D. A. Carmichael, granted leave of absence for thirty days. November 27, 1888. Relieved from duty at Washington, D. C.; ordered to Marine Hospital, Wilmington, N. C. December 3, 1888.

P. A. Surgeon S. C. Devan, detailed as attending Surgeon and acting Chief Clerk Marine Hospital Bureau. December 3, 1888. Granted leave of absence for eight days. December 8, 1888.

P. A. Surgeon F. M. Urquhart, to proceed to Evansville, Ind., for temporary duty. November 30, 1888.

P. A. Surgeon S. D. Brooks, granted leave of absence for thirty days. December 8, 1888.

Asst. Surgeon Seaton Norman, ordered to examination for promotion. November 27, 1888. Granted leave of absence for twenty-five days. December 8, 1888.

Asst. Surgeon J. B. Fattic, ordered to examination for promotion. December 7, 1888.

Asst. Surgeon G. M. Magruder, relieved from special duty at Way Cross, Ga. December 8, 1888.

Asst. Surgeon J. J. Kinyoun, granted leave of absence for ten days. December 8, 1888.

Asst. Surgeon G. T. Vaughan, granted leave of absence for twenty-three days. December 8, 1888.

Asst. Surgeon G. M. Guitéras, to proceed to Savannah, Ga., for temporary duty. December 3, 1888.